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ABSTRACT

The 18 member institutions of the Council for Educational Development and Research, Inc., constitute a national resource for conducting high-quality research and development and related technical assistance. Created in the mid-sixties by the federal government, and working in all 50 states, these institutions maintain multidisciplinary staffs and specialized facilities for doing research, development, evaluation, and training. This booklet describes the particular focus, interest, and expertise of each CEDaR member institution. In addition, each discusses its own capabilities in terms of resources, staff, and facilities. The institutions' particular research and development processes are described, along with a listing of institutional accomplishments. Agencies needing work performed relating to research, development, evaluation, or training will find the booklet a helpful reference list of qualified contractors. Each institution has experience performing both small-scale projects and multiyear programs. Their expertise ranges from work in early adolescence through adult education, and basic research through product development and dissemination. Curriculum development, large-scale evaluation and monitoring, and management training are all included. (Author/DW)

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Resources For R&D

18

INSTITUTIONAL CAPABILITY STATEMENTS OF EIGHTEEN CONTRACTORS

EA 007 262

CEDaR
Council for Educational Development & Research, Inc.
Suite 206 / 1518 K Street N.W.
Washington, D.C. 20005

2

1975

introduction

Individually, or through combined efforts, the 18-member institutions of the Council for Educational Development and Research, Inc., constitute a national resource for conducting high-quality research and development and related technical assistance.

These 18 institutions, created in the mid-60s by the federal government, maintain multidisciplinary staffs and specialized facilities for doing research, development, evaluation, and training.

Although funded largely through contracts and grants administered by the Department of Health, Education, and Welfare, the institutions also perform work for other federal, state, and local agencies. Additional funding sources include foundations, industry, and foreign countries.

The institutions work in all 50 states, numerous territories, and such diverse foreign countries as Australia, Brazil, Canada, New Zealand, Algeria, Iran, and the Dominican Republic.

This booklet describes each of the 18 CEDaR-member institutions and their particular focus, interest, and expertise. In addition, each discusses its own capabilities in terms of resources, staff, and facilities. Their particular r & d processes are described, along with a listing of institutional accomplishments.

Agencies needing work performed relating to research, development, evaluation, or training will find the booklet a helpful reference listing of qualified contractors.

Many of the institutions have a specific mission focus. Others have strong regional ties. Together, they combine the capabilities necessary to perform multifaceted work on a national scale.

Each institution has experience performing both small-scale projects and multiyear programs. Their expertise ranges from work in early adolescence through adult education, and basic research through product development and dissemination. Curriculum development, large-scale evaluation and monitoring, and management training are all included.

The directors will reply to inquiries about their institutions. General questions regarding the network of institutions and their consortia potential may be addressed to CEDaR's Washington, D. C. office. This office also has additional information about each institution, including annual reports, institutional brochures, and samples of completed products.

The CEDaR office retains a resident staff that will meet on request with Washington-based agencies interested in discussing possible collaborative efforts with the member institutions.

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The Appalachia Educational Laboratory was created in 1966 as a private, nonprofit corporation. It is governed by a 38-member Board of Directors broadly representative of educational and lay interests in a 7-state region. The Laboratory Director reports directly to the Board and is responsible for administering the work of the institution.

The mission of the Laboratory is to improve educational practices in the region through the development of innovative programs and processes and to serve as a resource to the region's state education agencies in assisting them in meeting their goals and responsibilities.

Programs and projects to be undertaken are identified through periodic needs assessments in the region and through regular contacts with key officials in the state education agencies.

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1. areas of expertise and interest

AEL has eight major areas of expertise derived from past and ongoing work. They are (1) Educational Organization and Administration; (2) Research and Evaluation; (3) Marketing and Diffusion; (4) Early Childhood; (5) Special Education; (6) Career Guidance, Counseling, and Placement; (7) Experimental Education; and (8) Vocational Technical Education.

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2. resources

During FY 75 (July 1, 1974 - June 30, 1975), AEL had $1.9 million in contracts. All but $78,000 was under contract to the National Institute of Education. Other contracts were with Union College (Barbourville, Kentucky) and the Appalachian Regional Commission.

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3. staff

AEL has 48 professional staff members and 16 support staff. Some 25 percent of the doctorates are in curriculum and instruction; 25 percent in psychology; 25 percent in research and evaluation; and 16 percent in counseling and guidance. The remainder of doctorates are in education administration, early childhood education, and diffusion.

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4. facilities

AEL maintains two facilities in Charleston, West Virginia. The main office is located downtown and has 8,175 square feet of space on two floors. Another office with 5,130 square feet is maintained on the Morris Harvey College campus.

The Laboratory has inhouse reproduction capability with an offset press. It maintains a specialized education library, a major resource to local colleges. The library also includes the complete ERIC microfiche system and has an extensive microfilm collection of journals.

AEL has data processing capability through its linkage with West Virginia University.

AEL also has access to commercial television facilities at 21st Century Productions, Inc., of Nashville, Tennessee, which has the studio capability to produce high-quality color videotapes.

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5. structure and programs

The Laboratory is organized into the following divisions: Early Childhood; Experimental Education; Career Guidance, Counseling, and Placement; Diffusion and Marketing; and Research and Evaluation.

The major program within the Experimental Education Division is Experience Based Career Education (EBCE). EBCE, in its third year of operation in Kanawha County, West Virginia, combines academic and career education into a total learning package for high school juniors and seniors. Students spend about 80 percent of their school time at community sites, learning what certain jobs entail and performing academic assignments related to these jobs. The community is the school. More than 120 community sites are available to EBCE students as they explore careers that interest them and complete the academic work pertaining to these careers. Throughout the year, a totally individualized academic program is tailored for each student. Learning coordinators (roughly equivalent to teachers) oversee the students' progress working with resource persons at the community sites to evaluate the students' efforts and progress. Students receive their diplomas from their home high schools.

In three years of program conception, development, and operation of a pilot program, EBCE staff has designed procedures and manuals available to school districts which wish to adopt the system. Technical assistance from EBCE to install EBCE is also available. One Kanawha County high school field tested EBCE during the 1974-75 school year and three others plan to adopt the program during the 1975-76 school year.

Career Decision-Making is the major program in the Division of Career Guidance, Counseling, and Placement. Career Decision-Making consists of two parts--the Career Information System (CIS) and 15 Career Guidance Units. The program is designed to provide a core around which a comprehensive career education program can be developed for high school students. The Career Information System is based on the Worker Trait Group Arrangement of the U. S. Department of Labor's Dictionary of Occupational Titles (DOT). The CIS enables students to access existing career information resources from a variety of personal variables such as aptitudes, temperament, interest, and school subjects. The System makes the DOT and other governmental and commercial publications more useful for career exploration. The products are a set of basic guides and indexes along with a number of access materials.

The 15 Career Guidance Units for senior high school students consist of counselor/teacher utilization guides, filmstrips, and student materials. The 15 units are (1) Career Awareness; (2) Self-Exploration; (3) Occupational Information; (4) Decision-Making;

(5) Interests; (6) Work Activities; (7) Work Situations; (8) Aptitudes; (9) Work Conditions; (10) School Achievement; (11) Work and Leisure; (12) Economic Influences; (13) Social and Family Influences; (14) Career Planning and Decision-Making; and (15) Your Future.

Both the units and the CIS will be available through a commercial publisher in 1976.

The Early Childhood Division's major program is Marketable Preschool Education. This program builds on an earlier Laboratory program called Home Oriented Preschool Education (HOPE) that offered a quality education program to rural 3-, 4-, and 5-year-olds through the use of daily television lessons, weekly visits to the home by paraprofessionals, and weekly group-sessions staffed by trained teachers. Evaluation of the results of three years of field testing of HOPE show that it is an effective, relatively low-cost means of providing rural Appalachian children with a running start on school. Subsequent demonstration projects, operated with minimal AEL supervision, yielded the same results.

All documents on the work of HOPE, including evaluation results and a series of manuals on how to set up a HOPE program, are available through the ERIC system.

AEL is now engaged in preparing for the production of a new series of television lessons and related home and classroom materials. The original series and other materials were prototypes designed to test whether, and in what ways, the HOPE process works. Two demonstration TV tapes and 60 scripts for future television lessons will be completed by November, 1975.

The program's immediate target is millions of preschoolers in the 13 Appalachian states, but the market exists wherever rural youngsters are not now receiving the advantages of kindergarten or other preschool programs.

Products that will be available during 1975 from AEL will be:

- A Home Visitor Training Package with filmstrips and other materials that can be used not only in HOPE programs, but also in any programs that use paraprofessionals to deliver services to the home.
- A document entitled A Competency Base for Curriculum Development in Preschool Education. AEL developed a list of 58 competencies that a child should have by the time he or she is 6 years old. This list, gleaned from the literature, was validated by a panel of national and regional scholars and Appalachian parents. This competency base will be used to develop preschool curriculum and evaluation instruments.
- A set of learning activities to be used in center-based preschool programs and in the HOPE group sessions that help the child achieve each of the 58 competencies.
- A set of learning activities for home visitors and parents to use in aiding the child in developing each of the 58 competencies.

- A discussion guide for parent groups that will assist them in fostering the development of the 58 competencies in their own children. Parent education is rapidly expanding and lacks any similar empirically-based guide for parent discussions.

A major effort of the Diffusion and Marketing Division was fostering the creation of the Consortium of State Departments of Education in the Appalachian Region in 1973. The chief state school officers of 11 Appalachian states comprise the Board of the Consortium. The existence of this multi-state Consortium facilitates the spread of innovative educational practices developed in the individual states, the Laboratory, and other agencies. Consortium task forces advise the AEL staff on specific programs, as well as work on areas of mutual concern such as a current project of developing a set of early warning signals that can be used in the identification of handicapping conditions in young children.

The Diffusion and Marketing Division also oversees a joint project with the Appalachian Regional Commission in which AEL is developing a catalog of existing materials that can be used with handicapped preschool children in the region.

Although personnel in all divisions can be called on to provide services to individual state education agencies, the Division of Research and Evaluation is in a position to be of particular value with its expertise in data collection and analysis; field research; summative and formative evaluation design; development of summative and formative evaluation instruments; test administration; computer programming; and survey instrument development and implementation.

6. R&D processes

AEL follows a basic model in its research and development activities although stages may vary somewhat as programs themselves vary. The first stage is needs assessment, determining the particular needs and concerns of educators and schools in the region. Once needs are determined, Laboratory staff conducts a preliminary, program-feasibility analysis to see if the resources are available to create a product to meet the needs and whether the developed product would be cost effective. If the program design is feasible, staff proceeds to design and develop the specific products. These products are field tested, evaluated, and revised to meet recommended changes. The products then are operationally tested with minimal Laboratory supervision to see if they work in the field under more nearly ordinary conditions. Results of the operational tests are evaluated as to effectiveness, cost, and field acceptance. The product is then made available to practitioners. The latter dissemination/implementation phase varies from a minimum of staff involvement to extensive preservice and inservice training for product users.

7. accomplishments

At least five school districts or multi-school district agencies in four states are operating an adaptation of AEL's Home Oriented Preschool Education Program, using other television shows such as Captain Kangaroo and Sesame Street until the new Around the Bend series can be produced by AEL. HOPE has been named one of the country's "Promising Programs on Childhood Education" by the White House Conference on Children. The U. S. Office of Education selected HOPE as one of the "Ten Most Innovative Programs" for use in a travel display and the U. S. Information Agency featured HOPE as an innovative educational practice in a film shown in 84 countries.

Some 40 agencies using paraprofessionals in home-based programs have requested AEL assistance in training. More than 500 copies of A Competency Base for Curriculum Development in Preschool Education have been distributed to curriculum developers and researchers.

The U. S. Department of Labor has selected the Career Information System (CIS) as one of the programs that states can use to set up a statewide system of occupational information under the Department's Occupational Information Systems Grants Program. Three of the some 40 field-test sites for the CIS were colleges and universities to determine if the System was applicable at the college level. Preliminary evaluation results show that the System is not only applicable, but greatly needed.

The Career Decision-Making materials for the high-school level will be available in 1976 through a commercial publisher.

The accomplishment of the Experience Based Career Education Program is the creation of an alternative approach to education for high school juniors and seniors. The National Institue of Education said the following about the instructional system:

"The (AEL/EBCE) instructional system flows from a design which is virtually unlimited in its potential power for delivering instructional objectives. Although complex, its interrelationships are organized with a rationality that provides for ease in utilization... the designers have created a system that can continually generate new curricular and instructional concepts and objectives in response to changing knowledge and environment."

One of the early programs of the Laboratory was the Educational Cooperative, a confederation of school districts who joined efforts to operate programs and offer services they could not afford individually. Several of the individual Educational Cooperatives which AEL either started or assisted continue to flourish in the region. In addition, the cooperative organization movement is firmly established in two states. Pennsylvania has organized its entire system into regional Educational Development Districts. Alabama is considering similar action, and Virginia has passed legislation to enable the direct funding of such intermediate organizations. Although AEL does not claim direct credit for the statewide efforts, the Laboratory was one of the Appalachian Region's pioneers in this field and provided leadership and procedures in the co-op development.

CEMREL, Inc. is a private, non-profit corporation governed by a 14-member Board of Directors from throughout the United States.

During its nine-year history, CEMREL has had as its mission the goal of improving the effectiveness of instruction in the schools by the development and application of curricula and instructional systems based upon:

- Relevant research in the social and behavioral sciences
- Systematic instructional analysis by scholars in the major content areas
- The application of systems analysis and planning to the organization and management of instruction
- Careful assessment of individual learners and learning outcomes
- The use of new and promising instructional technology

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1. areas of expertise and interest

CEMREL focuses its efforts primarily in four types of educational development work: (1) curriculum and instructional systems development; (2) educational research and evaluation; (3) publications and publishing services; and (4) school and community services.

2. resources

During its last fiscal year, January 1, 1974 through December 31, 1974, CEMREL's major sources of income were grants and contracts from the National Institute of Education and the United States Office of Education.

3. staff

CEMREL currently has 176 staff members with the following breakdown:

Program Managers	9
Program Management Support Personnel	7
Curriculum Developers	20
Editorial/Production/Graphics Personnel	20
Evaluators	18
Teachers	26
Teacher Aides/General Clerks	11
Librarian	1
Reproduction Specialists	3
Research Associates/Assistants	11
General Administrative Services	11
Maintenance	4
Clerical	33
Data Processing	2

4. facilities

CEMREL has approximately 61,000 square feet of space in its St. Louis Headquarters with special design, audio-visual, data processing, production, and reproduction facilities. In addition to its own computing equipment, CEMREL has on-line access to larger and faster equipment (IBM models 360 and 370) at McDonnell-Douglas, Inc., and Pet Milk, Inc.

5. structure, programs, and accomplishments

CEMREL's educational development work is currently divided into four categories:

A. Curriculum and Instructional Systems Development

- The Arts and Humanities

The current major curriculum development program in the Arts and Humanities is the Aesthetic Education Program, a grades K through 6 comprehensive curriculum development effort to assist schools in the process of educating students aesthetic sensibilities using the arts--film, literature, dance, music, visual arts, theatre--as a vehicle. Resources for curriculum development offered by the program are instructional materials, teacher educational materials and teacher educational programs, and an instructional system. Planning is under way for a 7 through 12 program. The materials produced by the Aesthetic Education Program are being published by the Viking Press/Lincoln Center for the Performing Arts.

As part of the curriculum development effort, CEMREL has created the "Five Sense Store," a traveling participatory exhibit in Aesthetic Education for children and teachers. "The Five Sense Store" is touring the United States under a three-year arrangement with the Smithsonian Institution's Traveling Exhibition Service.

CEMREL has also established eight Aesthetic Education Learning Centers throughout the United States for training teachers and for program dissemination. In a parallel activity, CEMREL has developed and tested Japan: An Approach to Aesthetics, the first of a series of instructional units on the aesthetics of other cultures, produced in cooperation with the Asian Society.

- Mathematics and Science

The Comprehensive School Mathematics Program is developing a new curriculum for all children, kindergarten through grade 6, and has completed the development and testing of a program for academically gifted and motivated secondary-school students, grades 7 through 12--The Elements of Mathematics. Now available for wide-spread use, The Elements of Mathematics series can be purchased from the CEMREL Institute. The elementary-school materials, designed for the full range of children who attend elementary schools, are in various stages of development. Kindergarten and first grade materials have been field tested for two years and are ready for extensive wide-scale use. Materials for grades 2 and 3 are in their second and first year of a nationwide field test. Material for grade 4 is in a pilot-testing stage. Work on grades 5 and 6 is in the preliminary stages.

CEMREL does not have a science program under way at this time.

- Language Development and Reading Comprehension

Language and Thinking, Level 1 designed to develop the oral language and reading abilities of young children, ages 3 to 7, has been developed and tested, and is now published by the Follett Publishing Company. The second series of this program area, Language and Thinking, Level 2, designed to increase students' reading comprehension, and listening and thinking skills in the middle elementary-school grades, is in pilot-testing stage.

- Environmental Education

CEMREL has joined with Webster College and the Missouri Botanical Gardens to develop a comprehensive environmental education program using the combined skills and scientific and research expertise of the Botanical Gardens, the curriculum development and evaluation expertise of the CEMREL staff, and the teacher training expertise facilities of Webster College.

B. Educational Research and Evaluation

CEMREL's educational research and evaluation staff conducts (1) basic and applied research learning; (2) inquiry into improved teaching methods; (3) formative evaluation studies aimed at improving educational materials, programs, and practices; and (4) summative evaluation and applied research studies to provide information about the effectiveness of schooling, of educational programs and products, and of educational practices and procedures to educational developers and to the professional community.

C. Publications and Publishing Services

Within this Publications Division, CEMREL has a capability for doing contract work in media, media production, and publications. These capabilities range from the design, creation, and manufacture of slide-tapes and filmstrips to broadcast-quality TV series, from black and white still photography to instructional film production, and from providing editorial assistance and advice to providing the full range of media, graphics, editorial, and production services that might be required to take a prototype product and do all the "final art" work, including packaging, to make "consumer ready."

D. School and Community Services

In its School and Community Services Division, CEMREL manages large-scale national and regional implementation efforts and provides technical assistance to school districts, state departments of education, city and state governments, and other organizations and institutions. These services range from CEMREL's Manvo Program, which provides technical assistance to and does research and training for the City of St. Louis Office of Manpower Planning in their efforts to maximize employment opportunities for unemployed and underemployed individuals including ex-offenders, members of minority groups, and women; to the inschool evaluation of commerically produced texts; to impact and effectiveness studies of the uses of a variety of educational technologies; to the provision of equitable educational services for nonpublic school children participating in Title III projects in the state of Missouri. In addition, CEMREL also maintains a continuing series of workshops, seminars, and training institutes for educational personnel.

The Center for Educational Policy and Management was established in 1973 through the merger of five existing units at the University of Oregon that shared a common orientation to the formation of educational policy and the management of educational institutions. These five units--the Center for the Advanced Study of Educational Administration, the ERIC Clearinghouse on Educational Management, and the departments of educational administration, higher education, and educational policy within the College of Education--each retained their original identity while assuming additional responsibilities within the framework of the Center.

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1. areas of expertise and interest

The Center attempts to serve as a viable and responsive link between researchers and practitioners in the field of educational administration. Through its Instruction and Field Services division and Information Services division, the Center provides ready access to current research and development efforts in the field and insures that the work of the researchers and scholars in its Research and Development division remains responsive to the changing needs of practicing educators. In all of its activities, the Center maintains a strong practical basis and emphasizes the goal of providing direct services to the educational public.

Within the Research and Development division, six separate programs are currently exploring different ways to optimize the organizational structure and improve the instructional programs of elementary and secondary schools. Specific topics under investigation include: the effects of team teaching on the administrative structure of schools; the use of organization development consultation in schools as a catalyst for organizational change; the use of self-instructional kits for training school personnel; the impact of implementing a School Planning, Evaluation, and Communication System; the responsiveness of different school district decision-making arrangements; and the documentation of organizational strategies for sustained improvement of urban schools and provision of technical assistance for these efforts.

The Instruction and Field Services division offers doctoral degree programs in educational administration, higher education, and educational policy through the College of Education. The division also offers a variety of inservice courses for practicing educational administrators and manages a state-approved, administrator certification program.

The Information Services division, through the ERIC Clearinghouse on Educational Management, produces a wide variety of publications intended to increase accessibility to literature in the field of educational administration and to stimulate productive communication between the Center and the educators and researchers it serves.

2. resources

Each of the three divisions of CEPM receives financial support from separate sources. In FY 75 the Research and Development division received $945,939 in support of its six contracts. Five of these contracts are with the National Institute of Education (NIE) and the sixth is a subcontract with the Center for New Schools in Chicago.

The Instruction and Field Services division is supported entirely from funds from the University of Oregon. During the academic year 1974-75, the University provided $189,502.

The ERIC Clearinghouse on Educational Management, the major activity in the Information Services division, is supported by a contract with the NIE. This contract contained $175,113 for calendar year 1975.

In addition to the three sources listed above, the University contributed $128,786 during the academic year 1974-75. This sum represents the University's contribution as its local cost-sharing portion.

3. staff

The Center employs a staff of 84. Of that number, 24 are classified personnel (office and clerical, technicians, and other support personnel), 24 are graduate research assistants (working 1/3 to 1/2 time), and 36 are faculty members. The latter include 31 with doctoral degrees in several fields including education, sociology, psychology, anthropology, and political science.

4. facilities

The Instructional and Research and Development divisions are housed in a 14,000 square-foot building located adjacent to the University campus. Office space, classrooms, conference rooms, and a research library are provided in this facility. CEPM occupies the building under a three-year lease negotiated by the University for the sole purpose of housing CEPM activities.

The Information Services division occupies 2,332 square feet in the University library. In addition to office space, the division houses the ERIC microfiche collections comprising 90,000 Reports of Research in Education, 110,000 articles from journals in education and 7,500 special collections documents. This division maintains a close working relationship with the University of Oregon Press thus making its publication resources available to both the Center and the Clearinghouse.

5. structure and programs

Structurally, the Center for Educational Policy and Management is composed of three divisions--Research and Development, Instruction and Field Services, and Information Services. The backbone of the Research and Development division is CASEA--the Center for the Advanced Study of Educational Administration. At present, six separate programs are operating within the r and d division. Each program focuses on a different facet of educational administration or on a different approach for enhancing educational decision-making and improving instructional programs. Each of the six programs is funded through a separate contract with the National Institute of Education.

- The Management Implications of Team Teaching (MITT) program is studying the impact of team teaching on the management structure of schools and attempting to identify variables that affect successful implementation of team teaching.
- The Strategies of Organizational Change program is investigating the value of organization development interventions for helping schools achieve desired structural change and the capabilities for solving their own problems.
- The Management Utilizing Staff Training (MUST) program is working to develop and disseminate various self-instructional kits to help school personnel learn the interpersonal and management skills necessary for coordinated planning and cooperative teaching activities.
- The PPBS in Schools program is investigating the effects of implementing a particular kind of Program Planning Budgeting System developed especially for use in schools--the School Planning, Evaluation, and Communication System (SPECS).
- The Responsiveness of Schools to their Clientele program has developed four types of school-district governance and is studying the conditions under which these types are most responsive to community needs and expectations.
- The Documentation and Technical Assistance program is studying specific efforts for educational improvement in nine urban settings. Results of these efforts will be the production of designs and techniques for change, which will in turn be made available to other schools to assist them in their own efforts to improve the quality of educational offerings.

6. R&D processes

Processes employed in the Research and Development programs vary widely. In general, development programs, where the major purpose is the generation and testing of materials for use by educators, follow a similar set of procedures. First, program content is identified by responding to a "Request for Proposals" or by initiating proposals in which a need for development has been shown. Second, a thorough search of available knowledge on the subject is conducted to provide the broadest possible base for materials generation. Third, materials are prepared to address the problems identified. Fourth, materials are tested in schools and evaluated to determine their effectiveness. Finally, materials are published and made available to the educational marketplace.

Research programs are established, again by responding to "Request for Proposals" or by initiative of staff personnel to gain knowledge about specific educational problems. Depending on the focus of the research, the entire range of research methodologies is employed. In some studies the primary research technique would rely heavily on anthropological, interview, and observational methods while others would employ sophisticated statistical, computer-assisted approaches. In all cases, the final research product is a report that includes the findings of the research. These reports are published and made available to other researchers and practitioners and become a part of the growing body of knowledge supporting further study and improved practice in education.

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7. accomplishments

Since 1965, the Center has been the nation's largest single source of research reports and monographs dealing with educational administration. The content of these publications has included administrative roles, organizational change, educational development, technology in education, political processes, organizational development, communications, and systems applications. Staff members have also held offices in national associations, contributed to scholarly journals, and have been frequent speakers in conferences both in the United States and abroad. The Center is the nation's only organization that conducts programmatic research and development in the problems surrounding educational administration. It serves not only as an organization that focuses on the study of educational administration, but also as a resource for administrators as they deal with the many issues surrounding the operation of schools.

The Center for Occupational Education at North Carolina State University was established as a research and development center in 1965 under the provisions of the Vocational Education Act of 1963. One of two such centers in the nation, the Center was founded on the principle that the problems facing vocational education are so varied in nature that no single field of research, or single disciplinary orientation, has the capability of providing all the answers.

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1. areas of expertise and interest

The mission of the Center is to provide a national resource for policy analysis and development, with special emphasis on planning and evaluation at federal, state, and local levels. The goals are three fold:

To inform and advise constituency groups on new and developing issues and trends in contemporary affairs that have implications for vocational education policy.

To assist federal agencies in working cooperatively with various groups to develop effective vocational education policies.

To provide rapid response to requests regarding matters of vocational education policy.

The Center's objectives are to provide technical assistance in:

identification of critical issues in vocational education;

assessment of existent and emerging national and state needs in vocational education;

identification of national priorities;

formulation and evaluation of strategies for implementing federal priorities;

design and implementation of a national vocational education data system;

rapid response surveys of the status and impact of vocational education;

rapid retrieval and analysis of secondary data sources relating to specific policy issues; and

preservice and inservice training in the use of data in vocational education policy-making.

The Center's organizational competencies include demonstrated experience and capabilities in:

1. the delineation of issues and policies in vocational education;
2. planning, evaluation and policy analysis;
3. informational needs assessment;
4. utilization of manpower data in vocational education planning;
5. facilitating interagency cooperation;
6. interdisciplinary research;
7. national field survey design and implementation;

8. identifying socioeconomic and demographic factors affecting vocational education;
9. follow-up system design and implementation;
10. comparative analyses of management information systems;
11. conducting conferences, seminars, and workshops;
12. data-based management; and
13. advanced statistical and simulation techniques.

2. resources

During the past fiscal year the Center has operated with contracts from the Bureau of Adult and Occupational Education and the Educational Professional Development Act of the U. S. Office of Education; the National Institute of Education; and the school district of the District of Columbia.

3. staff

The Center has a full-time staff of 20 professionals and 6 clerical employees. The professional staff members, whose names follow, have varying backgrounds in vocational education, psychology, economics, statistics, human resource development, computer programming, psychometrics, mathematical modeling, systems analysis, and related disciplines.

William L. Ballenger, M.S., Research Associate
Computer Applications to Education; Simulation Modeling

Faye L. Childers, Computer Programmer
Computer Programming

Douglas W. Champion, B.S., Computer Programmer
Economic Modeling Simulation; Data Management

John K. Coster, Ph.D., Director
Program Evaluation

Joseph W. Cunningham, Ph.D., Associate Director
Human Resource Development and Work Motivation

Donald W. Drewes, Ph.D., Associate Director
Educational Planning and Policy Analysis

Douglas S. Katz, Ph.D., Research Associate
Program Planning and Evaluation

Sue J. King, B.A., Research Assistant
Editorial Services

David R. Kniefel, Ed.D.
Administrative Decision-Making and Research Methodology

John E. S. Lawrence, M.S., Senior Research Assistant
Organizational and Social Psychology

Robert L. Morgan, Ph.D., Senior Research Associate
Program Management and Evaluation

Joseph T. Nerden, Ph.D., Senior Consultant
Educational Administration and Law

Elizabeth H. Oglesby, B.A., Junior Research Assistant
Educational Data Identification and Classification

Lynn E. Ondrizek, M.S., Research Assistant
Economic and Demographic Research

John J. Pass, Ph.D., Research Associate
Vocational Psychology and Systems Analysis

G. William Porter, Ed.D., Research Associate
Program Planning, Administration and Evaluation

N. Blyth Riegel, M.A., Graduate Research Assistant
Multivariate Analysis Techniques and Psychometrics

Frank J. Smith, Ph.D.
Systems Analysis Applied to Human Resource Development

David L. Steele, B.A., Computer Programmer
Computer Programming and Systems Analysis

John L. Wasik, Ed.D., Research Associate
Mathematical Modeling in Educational Planning and Evaluation

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4. facilities

The Center is located within the modern School of Education building at North Carolina State University, Raleigh. In addition to the campus library facilities, the Center has direct access to the facilities at Duke University and the University of North Carolina. Within its own building, the Center has equipment to produce complete audiovisual materials, plus computer facilities. In addition, the Center is tied in with the Triangle Universities Computer Center located at the Research Triangle.

5. structure and programs

During the past 10 years the Center has been involved in a variety of efforts ranging from the accreditation of post-secondary occupational education programs to the identification of problem areas in occupational education. Studies in the areas of occupational education planning; work analysis; evaluation; labor and economics; and education in rural areas have been programmatic concentrations, as have such areas as change and development, such as a systems approach for occupational education in areas of social and economic transition, adult education, and personnel and leadership development.

The Center's programmatic thrust is currently in the area of dynamic analysis and strategic planning, i.e., a systematic application of information technology to the identification, collection, and provision of management information for educational decision-makers. This program currently has two major thrusts: (1) research and development aimed at improved information technology and strategies for agency implementation, and (2) application of the developed information technology to field-generated problems.

6. R&D processes

The Center, since its inception, follows a multi-disciplinary policy approach to problems in vocational education. The value of the multi-disciplinary approach in the Center's program has been apparent over the years. The differing disciplinary orientation has allowed for a constant input of new approaches and ideas, and has created a potential for change seldom touched by most educational research. The Center has continued to focus its major research and development programs on the relationships of occupational education to its context or environment. The socio-ecological frame of reference for occupational education has included its relationship to regional economy, political influence, the power structure, and the employment or work environment.

7. accomplishments

During the past ten years, the Center has distributed over 50,000 copies of research reports and 25,000 copies of brochures and newsletters; has conducted over 50 major national conferences involving an excess of 2,500 participants; and has in one way or another been in contact with the majority of vocational education leaders at the national, state, and local levels. A selected list of policy-relevant publications follows:

Hamlin, H. M. Citizen Evaluation of Public Occupational Education.

Coster, John K., and Robert L. Morgan. The Role of Evaluation in the Decision-Making Process.

Mercer, Charles V. Public Postsecondary Occupational Education in the United States.

William, Robert T. *Analysis of Supply and Demand Data for Program Planning in Occupational Education.*

Charles I. *Education and Manpower*

Drewes, Donald W. *A Planning System for the Implementation of Section 553. Education Professions Development Act, in State Agencies for Vocational Education.*

Pucinski, Roman. *Everything You Always Wanted to Know About the National Legislature but . . .*

"Planning by Objectives: A Systematic Procedure for Planning."

"DASP User's Guide to the Bibliographic File Entry Form."

"DASP User's Guide to the Biographic File Entry Form."

"DASP User's Guide and General Description for DASP Interaction Display and Report System."

Katz, Douglas S. "The Development of a Student Follow-Up System: Report No. 1."

Katz, Douglas S. "Employer Survey Instrument: Report No. 3."

"Preliminary Description of North Carolina County Data System."

Lawrence, John E. S., and J. K. Dane (editors). "State Vocational Education Planning: An Assessment of Issues and Problems."

Morgan, Robert L., John E. S. Lawrence, and Douglas W. Champion. "A National Survey of Problems in State Planning for Vocational Education."

Katz, Douglas S., Robert L. Morgan, and D. W. Drewes. "Vocational Education and Urban Youth: A Follow-Up of 1968, 1971, and 1972 Graduates of the Public Schools of the District of Columbia."

Kaufman, Jacob J., and John M. Sumansky. "Manpower Planning, Occupational Education, and Labor Mobility."

Kaufman, Jacob J., and John M. Sumansky. "Manpower Planning, Occupational Education, and the Decision to Participate in the Labor Force."

O'Brien, John F. "Managerial Reaction to Management Information Systems."

Woodruff, Alan, Frank Banghart, Anita Bright, and Mary Matthews. *State and Local Responsibilities for Planning Occupational Education.*

Dane, J. K., and William Mangold. *Demography and Education Planning: A Review and Synthesis.*

Nerden, Joseph T., Donald W. Drewes, John E. S. Lawrence, and Elizabeth H. Oglesby. *Questions in Vocational Education: What Everyone Wants to Know and Is Not Afraid to Ask.*

Project FDNEED: Preliminary Taxonomy for the Development of a National Vocational Education Information System.

Project EDNEED: Classification of Information for the Development of a National Vocational Education Information System.

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The Center for Social Organization of Schools is a research component of The Johns Hopkins University. The director of the Center reports to the dean of arts and sciences.

The Center was established in 1966 to conduct research and development activities aimed at (1) increasing knowledge about how schools affect students and (2) developing improved organizational forms for education. The strategy for achieving these goals is to conduct survey and experimental research in available schools and school systems in cooperation with administrators and teachers. The research focus may be Center-initiated, to evaluate and develop specific Center products, or school-initiated, to develop and evaluate products to meet the specific needs of the schools.

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1. areas of expertise and interest

How do schools affect students? The primary interest of the Center is in research studies to answer this question and, from the research, to develop methods that schools can apply to affect students more positively. Specifically:

- What effects do open schools have on student academic achievement, responsibility, college plans, satisfaction, etc?
- What effects do desegregation and segregation of schools and classrooms have on student academic achievement and race relations?
- What effects do various school reward systems have on student achievement and attitudes toward school?
- What effects do different types of school organization have on students' psychosocial maturity?
- What effects on students can be found for attendance or non-attendance?
- What effects on students can be found for school-administered guidance counseling and interest inventories?

The Center expertise required in studying and answering these questions consists of expertise in basic research; applied research; survey administration and data analyses; inventory construction, revision and application; and classroom experimentation design and procedures.

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2. resources

Center sources of income since its inception have been derived from the Carnegie Corporation, the Ford Foundation, the Office of Education, the National Institute of Education, and The Johns Hopkins University.

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3. staff

Since 1966, the Center has maintained an interdisciplinary staff of approximately 15 professional senior researchers and a similar number of support personnel. The professional research staff includes educational sociologists; educational, social, and clinical psychologists; and measurement and computer specialists, all experienced in studying educational environments. In addition, other faculty members in various disciplines at Hopkins are available for consultation and participation in Center research projects.

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4. facilities

The Center is housed in a separate building on the University campus. The facilities include a research library and an IBM 1401 with auxiliary equipment for exclusive use of Center personnel. Center staff members assist researchers with programming services and consultation regarding computer operations and usage. A staff of highly qualified research assistants and Johns Hopkins graduate students are available to assist in all projects. All projects also have access to the facilities of The Johns Hopkins University, including the libraries and IBM 7094 computer facilities.

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5. structure and programs

The research studies of the Center are conducted under three programs, each with its own directors and professional and supporting staff.

The School Organization program concentrates on authority-control structures, task structures, reward systems, and peer-group processes in schools. It is currently completing an extensive study of the effects of open schools. It has developed the Teams-Games-Tournament instructional process for applying principles of cooperation and competition in school classrooms.

The Schools and Maturity program is studying the effects of school, family, and peer-group experiences on the development of attitudes consistent with psychosocial maturity. The objectives are to formulate, assess, and research important educational goals other than traditional academic achievement. This program has developed the Psychosocial Maturity Inventory, an instrument to measure the effects of school and life experiences on students' individual, social, and interpersonal adequacy.

The Careers program bases its work on a theory of career development. It has developed a self-administered vocational guidance device and a self-directed career program to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

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6. R&D processes

The basic research process employed by the Center is dictated by its mission to study how the organization of schools affects students. Varieties of organization are sought in natural school-settings and data are collected and analyzed from these. The studies may be initiated by the Center to evaluate Center innovations, or may be initiated by school and school districts who want to determine effects of their organizational structures.

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7. accomplishments

The Center's educational research has provided both factual information and theoretical guidance for decision making by policy makers and school personnel. Some highlights of the Center's accomplishments include:

- *Studies in equal opportunity*--The Center's desegregation studies, conducted from 1967-69, provide valuable knowledge still being used by policy makers and school administrations. James Coleman, author of *Equality of Educational Opportunity*, served as a Center program director for four years. James McPartland, author of *The Desegregated Student in Segregated Schools*, serves as associate director of the Center. The Center's research under the Social Accounts program (1968-72) provides a broad knowledge of minority and majority-group career patterns for evaluating policy decisions concerning equal opportunity programs.
- *Evaluation of the effects of simulation games on students*--The Academic Games Program (1966-73) served as a national center for the development of simulation games and evaluation of their effects. The program published over 30 research reports concerning the classroom use of games and their effects on student learning. This pool of knowledge is helping thousands of school principals and teachers make better decisions about the use of games in schools and classrooms.
- *Theory and practical applications for the study of careers*--Center Director John Holland's theory of careers has been cited as the "major catalyst" for increasing scientific investigations of the theory of interest measurement. Over 100 research studies have been published examining his theory and the career guidance instruments developed from it, especially the *Self-Directed Search* (SDS). The SDS is a career-guidance instrument that allows students to assess their interests and abilities. The SDS is a major innovation in career guidance and is quickly becoming the instrument of choice in the field. Since 1971, schools and colleges have used the SDS to provide reliable and valid career guidance to over 400,000 students. A complete guidance program built around the SDS--the *Self-Directed Career Program*--is another major step forward, allowing the student even more independence and self-direction in a thorough career search.
- *Effects of open schools on students*--The "open school" movement is spreading rapidly throughout the country. School administrators and communities need factual information about how open schools affect students to make rational decisions about reorganizing their schools and curricula. The Center is providing this type of information through a large-scale, longitudinal-survey research study of elementary, middle, and high schools. The study is examining the real effects of open environment education on students, including effects on achievement and nonacademic student outcomes such as responsibility, self-reliance, and satisfaction with school life.

- Technology for examining school effects on student psychosocial development--Research on socialization and human development typically focuses on a wide variety of separate traits, attitudes, and values. Center research, however, has produced a conceptualization of "psychosocial maturity" that integrates these separate components and provides a comprehensive, coherent model of psychosocial development. Based on the model, the Psychosocial Maturity Inventory was developed to assess the level of students' psychosocial development and determine the degree to which schools currently add or detract from the development of maturity in students. The inventory is being increasingly used in school systems. One state, for example, has administered it to almost 100,000 students.
- Instructional methods for improving student achievement--Center research on small-group processes, such as competition and cooperation, has resulted in the development of an instructional process called Teams-Games-Tournament (TGT). The TGT process allows the teacher, through a simple reorganization of the classroom, to effect dramatic increases in student learning of basic skills and subject matter. Using a Center-produced manual, elementary and secondary school teachers in math, science, language arts, and other subjects have used the TGT process to increase student achievement, peer-tutoring, and student interaction in their classrooms.
- Procedures for improving student attendance--Student absenteeism is one of the most pressing problems in schools today. An analysis of the forces related to student absenteeism has produced a clear picture of the problem, its causes, and some likely solutions. The technical report of this research provides school personnel with the information they need to understand, and attempt to alleviate, student absenteeism. In addition, this project has developed widely applicable computerized procedures for monitoring and organizing absenteeism and attendance data in large public schools and school systems. 30
- Assessing educational growth--The inability to compare the accuracy of various statistical procedures for assessing student growth in achievement has kept educators and researchers from being able to agree on the real effects of educational programs. Using simulated data, Center researchers have produced a landmark study showing that the simple difference between pretest and posttest scores is as accurate as any other estimate of achievement growth and is much easier to compute.

The Center for the Study of Evaluation (CSE) is a university-based research and development center established at the University of California, Los Angeles, in 1966.

The mission of the Center is to conduct research, development, training, and dissemination activities for the purpose of improving the planning and evaluation of educational and other social action programs. More specifically, CSE activities include theory building in the areas of tests and measures and in educational decision-making; development of exportable evaluation procedures and materials in the form of manuals, workshops and kits; and the conduct of special evaluation and dissemination projects for federal, state, local, international, and university agencies requiring evaluation services. The work of the Center has clarified the ways in which systematic consideration of evaluation issues can be helpful in the planning, conduct, and improvement of many kinds of programs.

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1. areas of expertise and interest

CSE's expertise is recognized in the following areas: product development from evaluation theory and research on decision-making; criterion-referenced measurement; evaluation of tests; development of measurement systems; bilingual education; and program evaluation in education and social action programs.

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2. resources

The Center was funded exclusively by the U. S. Office of Education during its first few years. Two of its major programs were transferred to the National Institute of Education when that agency was established. The following is a summary of CSE funding sources and levels for July 1, 1974 to June 30, 1975.

National Institute of Education	
Evaluation Technologies Program	$ 552,928
Program for Research on Objectives Based Education	257,330
National Training Program	53,330
State of California Office of Legislative Analysis	
California Preschool Evaluation Project	41,000
State of California Division of Vocational Education	
EMCA Workshop	28,000
Agency for International Development	
Education of Nonformal Education in Ecuador	76,326
Sub-contracts of UCLA administered Research Projects	
Evaluation Services and Training Unit	98,400
Total Fiscal Year 1975	$1,107,314

3. staff

The Center for the Study of Evaluation employs 62 individuals, full and part-time, on federal and non-federal projects. Of these, 43 are professional and 19 are support personnel. Of the professional staff, 20 hold doctorates in various education disciplines (comprehensive curriculum, evaluation, measurement, modern-language research and teaching, and research methods) and psychology (psychological measurement and industrial psychology). The majority of the 23 other professional staff members are graduate students or doctoral candidates in educational research and evaluation, vocational education, measurement and statistics, physics, counseling, learning and instruction, education psychology, teacher education, higher education administration, and computer sciences. Undergraduate training of the staff was in fields ranging from psychology, mathematics, English, library science, engineering, physics, history, Latin American Studies, Afro-American Studies, Spanish, to finance.

The Center is an integral part of the University, particularly with respect to personnel policies. Faculty are encouraged to participate in the research and development efforts and to suggest new directions. Part-time associate research staff are recruited from among graduate students in various academic programs on campus. A large percentage of the support staff are current or former students at UCLA.

4. facilities

Through its UCLA affiliation, CSE has access to the full range of university resources including the university library facilities. This includes the Education/Psychology Library that has a complete ERIC microfiche collection, the Graduate School of Management Library, and the Public Affairs Service of the University Research Library that handles government documents, census and demographic statistics, and publications and policy material of most large, social-action organizations. Extensive data processing service is available from the Campus Computing Network (CCN) that maintains an IBM 360 Model 91KK computer. Keypunch and verifying equipment and a full-time keypunch operator are available within the Center. A full range of services are available through the UCLA Printing and Production Office; the Center also maintains an A. B. Dick 360 offset press and limited binding equipment for low-cost, quick turn-around production of field-test products and limited-audience research documents.

5. structure and programs

The Center is organized into four major divisions. The first two, Program for Research on Objectives-Based Evaluation and the Evaluation Technologies Program, are ongoing programmatic r &d efforts currently supported by the National Institute of Education. The third division, Special Projects Program, conducts applied research, evaluation studies, training, and dissemination, and develops educational materials on a contract basis for public education and social-action agencies. The fourth division, Evaluation Services and Training, provides technical assistance to the UCLA campus community.

- Program for Research on Objectives-Based Evaluation

The Program for Research on Objectives-Based Evaluation (PROBE) has been active in the field of educational measurement since the mid-1960's. Early activities of the project resulted in two innovative products now used in the schools: (1) the Instructional Objectives Exchange (IOX), and (2) the System for Objectives-Based Assessment in Reading (SOBAR), now available through Science Research Associates as part of their Mastery: An Evaluation Tool. Using the research and experience of PROBE's earlier products, the staff is now developing a major system for evaluating reading in the Spanish language, SOBER-Espanol, which will be used in the wide variety of bilingual education projects operating in the United States.

Basic research on criterion-referenced measurement conducted by PROBE staff is supplemented by conferences of psychometricians and test developers; research results are published in journals and as CSE monographs. Implementation strategies are being developed and packaged in the form of workshops to assist classroom teachers in utilizing existing objectives-based measurement systems and the results of new research in that field.

- Evaluation Technologies Program

The major goal of the Evaluation Technologies Program (ETP) is to provide training in the conduct of educational and social-action evaluations. An ever-increasing federal, state, and local demand for evaluation has created a great need for qualified educational evaluators; at present, the demand far exceeds the supply. The Technologies Program is attacking this manpower problem by developing evaluation technologies and producing instructional packages for training present and prospective educational and administrative personnel to perform certain evaluation functions.

There are presently three types of training materials under development: (1) Evaluation KITs provide prescriptive information on conducting evaluations for specific situations, e.g., the elementary school principal; (2) Evaluation Workshops provide training in alternative ways of conducting evaluations for a wide variety of educational purposes; (3) Special Topic Units include resource materials needed at various stages of an evaluation; the CSE Test Evaluation Series is an example. A vital feature of all ETP materials is their exportability, that is, they can be used in the field with no assistance from the developers.

- Special Projects Program

The Center engages in a series of activities related to its programmatic r & d efforts, but not within the scope of work of its major contracts. These special projects provide service to practicing educators, while exposing the staff to a variety of contexts in which evaluation techniques are utilized. The following are examples of special projects conducted by the Center.

The *California Preschool Evaluation Project* collected, reported, and analyzed information for the Legislative Analyst of the State of California on the success of the state's preschools. The project's final report is an example of the way evaluation results should be reported to facilitate decision-making.

The *National Training Program* is a dissemination contract with the National Institute of Education. The Program is implementing *Evaluation Workshop I: An Orientation* into the states and local school districts through the Regional Offices of the Office of Education. At the conclusion of the 18-month project, over 1,500 individuals will have received 2 days of training in program evaluation and a network will have been established for disseminating other training materials on a national scope.

Evaluation of Nonformal Education in Ecuador is investigating the success of an education program developed at the University of Massachusetts and implemented in nonurban areas in Ecuador. In addition to evaluating the particular curricula, the project will report to the Agency for International Development (AID) the full range of goals that could be addressed by such "nonformal" education materials and the optimum procedures for disseminating and implementing the materials.

EMCA^2 Workshop Project is developing a training package for the Division of Vocational Education, California State Department of Education. *Effective Management Communication and Administrative Accommodation* is a management tool whose major emphasis relates to improved decision-making, either to justify the need for development projects or to establish accountability in ongoing projects. The Center was asked to package this technology into a workshop because of its expertise in developing exportable training materials.

- *Evaluation Services and Training (ESaT)*

Evaluation Services and Training (ESaT) is a self-supporting unit within the Center for the Study of Evaluation. ESaT was established to provide evaluation and related training to UCLA projects and agencies. The kinds of services and training available are flexible to meet the diverse needs of programs served. Assistance is available in designing and conducting evaluations, in developing training materials, and in organizing and conducting exportable training sessions (or workshops) in the theory and practice of evaluation. In addition, statistical compilation and research design are within the program's realm of expertise. A direct line with the Campus Computer Network (CCN) at UCLA provides ESaT with the latest in computer-programming capabilities and facilities.

6. R&D processes

During the initial stages of CSE product development, the content areas are determined by needs assessments, including activities such as: literature reviews, consultation with other experts working in the field of evaluation; consultation with those conducting evaluations and those being evaluated; consultation with federal, state, and local officials; and surveys of previous, current, and prospective consumers of evaluation information. During the development stages of the materials, tryouts of early drafts are conducted with representative samples of users and there is interaction between users and developers. Later drafts are tried out as they are intended to be used; that is, without the assistance of the developer. Revisions are made based on test, survey, and anecdotal data. Finally, after the completion and dissemination of the materials, impact studies to validate their effectiveness are made. Most CSE materials have been developed in accordance with criteria of cost-effectiveness, practicality, flexibility, and exportability.

7. accomplishments

During the eight years since its establishment, CSE has made major contributions to the field of educational evaluation and measurement. The conceptual model that guides CSE product development (needs assessment, program planning, implementation and progress evaluation, and outcome evaluation) has been adopted by many education and social action agencies. Research on the decision-making utility of evaluation has affected the kinds of information considered in evaluation.

In terms of tangible products that practitioners can readily use to plan and evaluate programs, the following are notable:

CSE Test Evaluation Series: four publications that list, categorize and evaluate all published standardized achievement tests used in American schools.

CSE Evaluation Workshops: two-day training packages on evaluation that can be conducted onsite by existing district or school personnel.

CSE Elementary School Evaluation KITs: packages containing all the information and procedures needed to evaluate elementary education programs at the school-building level.

SOBAR: System for Objectives-Based Assessment in Reading that allows an educator to measure the success of a particular reading program, based on the objectives specified for that program.

SOBER-Espanol (still in development): a parallel system in Spanish that will fill a definite need in Bilingual Education in the United States.

The national Center for Vocational Education was developed through a joint agreement among the United States Office of Education, the Ohio State University, and the profession in 1965. The Center operates as an independent unit of the Ohio State University under the Office of the Provost and the leadership of its director.

The Center's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning and preparation. The Center fulfills its mission by:

Generating knowledge through research
Developing educational programs and products
Evaluating individual and program needs and outcomes
Installing educational programs and products
Operating information systems and services
Conducting leadership development and training programs

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1. areas of expertise and interest

The Center's staff, in consultation with national advisory groups, government agencies, and others, has identified several r & d program areas of primary interest. These major needs and problem areas were selected to provide maximum assistance to leadership groups in improving the delivery of vocational and career education. Typically, these programs integrate research, development, and field testing in schools, state departments, and universities to produce useful systems and products that exert minimum leverage on major need-problem areas. They are further characterized by their multi-year sustained focus and adherence to national priorities. Additionally, they require the Center's "full-service" capacities in evaluation, training, and information services to assure rapid and effective use by the field.

The major program areas selected include: Individual Career Planning; Management and Evaluation System; Professional Personnel Development in Vocational Education; Curriculum Planning and Design; Diffusion; and Career Education.

A major effort has been maintained in disseminating our products and securing full utilization. Concurrent to the r & d programs, we have conducted 280 national and regional seminars for 9,500 state and national leaders.

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2. resources

The sources of income by funding agencies for the current year are: National Institute of Education; U. S. Office of Education; Bureau of the Handicapped; Department of Transportation; state departments of education; school districts; business; and industry.

3. staff

The Center's 177 full-time equivalent staff currently include senior professionals and graduate research associates supported by technical, administrative, and clerical personnel. The interdisciplinary staff consists of individuals with educational preparation and experiences proportionally in three areas: vocational education, general educational areas (e.g., curriculum, guidance, administration), and supporting disciplines (e.g., psychology, sociology, anthropology, and engineering).

4. facilities

The Ohio State University has constructed two adjacent, modern facilities for the Center on the main campus in Columbus, Ohio.

The Center's Research Library on vocational, technical, and career education is one of the most specific and complete in the world. The facility includes a growing collection of books, reports, and ERIC documents, dissertations, periodicals, a complete ERIC microfiche collection titles, and the AIM/ARM collection. It also provides microfilm-microfiche readers and printers.

The Media Services area of the Center provides internal expertise in writing, editing, graphic arts, camera-ready copy preparation, high-speed duplication and binding, and audio-visual production.

University services provide a back-up capacity. They include the Teaching Aids Laboratory, the Department of Photography and Cinema, the Statistics Laboratory, and the Telecommunications Center.

5. structure and programs

The Center's basic organizational structure is comprised of five divisions: (a) Research and Development Programs, (b) Personnel Development, (c) Special Projects, (d) Information and Field Services and (e) Evaluation. The following provides a brief description of the roles and nature of the current efforts within each division of the Center:

- Research and Development Programs

The role of the Research and Development Programs Division is to make individual career planning and preparation more effective by engaging in programmatic r & d to provide tested products and reliable knowledge in the areas of instructional methodology, career planning, leadership and management, dissemination, and diffusion. The Division focuses generally on school-based, non-baccalaureate programs in vocational, technical, recurrent, and handicapped education.

- Special Projects

The Special Projects Division assists educational and business/industrial agencies in planning, developing, and conducting vocational and career training programs.

- Personnel Development

The Personnel Development Division focuses on solving problems related to the development of personnel who facilitate individual career-planning and preparation. It has the capacity to provide personnel development services to the business and industrial community, to criminal justice systems, and to governmental agencies in the areas of adult/continuing education, manpower training, and the international arena.

- Information and Field Services

The role of the Information and Field Services Division is to provide individuals and groups with access to, and assistance in the use of, educational programs, products, and information. The principle activities are installation of educational programs and products and the development and operation of information systems.

- Evaluation

The role of the Evaluation Division is to assist the Center and its clients in evaluating educational products and programs. Specific capabilities include needs assessments, evaluation audits, third-party evaluations, and installation of evaluation systems.

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6. R&D processes

In general, the r & d operations of the Center are organized by programs rather than by functions or processes. Each program area is responsible for all of the research and development processes required to achieve a knowledge product or a development product.

The Evaluation Division performs a quality control function by administering a system of external reviews at critical points throughout r & d program implementation. External (third-party) reviews are conducted for technical plans, instruments, and initial findings and inferences.

User involvement is heavy throughout the r & d activities of a given product effort, including the employment of advisory panels and surveys among potential users in ascertaining needs and identifying problems. Methodologies and prototype materials are usually developed cooperatively with representatives of target populations. Field testing is as extensive and rigorous as possible.

Standard models of scientific research are employed including exploratory, descriptive, and experimental. Development is carried out by means of exploratory studies, feasibility studies, product engineering, and field testing. Product engineering is conceived as decision-oriented development research that provides information, with a known level of credibility, about the actual performance of a product with specified characteristics.

7. accomplishments

The Center's research, development, training and dissemination of products partially reflect its performance on these goals. A total of 140 research and development projects have been completed on a wide variety of problems. The Center has developed a broad array of educational products such as curriculum and guidance materials for students in elementary through high school grades; performance-based instruction for preparing vocational teachers; materials for inservice education of teachers and administrators at all levels; handbooks, instruments and procedural manuals needed to accomplish such necessary tasks as evaluating a state system of vocational education, devising a guidance system tailored to local priorities and available resources, selecting vocational program and course offerings, defining the task requirements of an occupation, and planning the introduction of an innovation. It has developed one of the major models of career education in collaboration with 6 local school districts involving 85,000 students, 3,600 teachers and administrators; and it provided a variety of evaluation, consultation, investigation, analysis, and review services to schools and to state and federal agencies.

The Center for the past 7 years has published quarterly Abstracts of Instructional Materials and Research Materials (AIM/ARM) in vocational and technical education. These have become the standard reference sources and means of access to the curricula and literature in all occupational fields. The Center's list of 292 publications includes 98 research and development reports; 41 leadership training documents; 25 bibliographies exclusive of AIM/ARM; 101 review, analysis, synthesis, and interpretive reports; and 27 occasional papers.

Rather than work in isolation from its clientele, the Center has worked in concert with its constituents. More than 195 contractual collaborative agreements have been undertaken with 71 universities, 49 state departments, 28 school districts, 16 professional associations, and 4 business and industrial organizations. In addition to contractual activity, the Center has continuously involved these organizations in field site activities.

Education Development Center, Inc. (EDC) is a publicly supported nonprofit corporation engaged in educational research and development. Founded in 1958 to administer the PSSC high school physics course development, EDC became a leading center for curriculum reform and institutional development in the United States and abroad.

In the mid-sixties, EDC expanded its work in preservice and inservice teacher training, community support for educational programs, and school change. From 1967 to 1971, EDC was the New England Regional Educational Laboratory of the USOE.

EDC is governed by a board of trustees and a membership. The managing director is responsible to the board.

Over the past decade, EDC has been moving from an initial concentration on curriculum development toward programs aimed more broadly at social change. We now see our prime responsibility to be the development of educational programs that (1) Seek out and respond to educational problems of highest priority to communities, students, teachers, and administrators--

--in ways which increase their own ability to solve future problems
--by undertaking as many aspects of each problem as we can responsibly attempt to solve
--by bringing together--from the schools, the universities, the professions, and the community--people who possess the special capabilities that we need

and (2) Create and disseminate materials and services that--

--sustain delight in teaching and learning
--encourage personal initiative and responsibility
--offer opportunities for choice among a wide range of ideas resources

and (3) Foster, in those who learn and teach, a recognition of each person's worth and the interdependence of all.

Through these efforts, we hope to contribute to the achievement of a more egalitarian society in which all work together to fulfill the human potential of each.

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1. areas of expertise and interest

Our experience is broad. It includes curriculum development at every age level, teacher training, work with school administrators, and involvement of the whole school community in effecting change. We have managed consortia of institutions of higher education in developing institutions for other countries. We have produced over 800 films, many of them award-winning, in areas of science, social studies, and teaching itself. We are responsible for the introduction of open education into this country from England and for pioneering in teacher workshops in new materials and teaching practices. We invented a style of program development that brought together university specialists and classroom practitioners for short or long periods to share their expertise. We have developed models for continuing education of professionals and non-professionals in a variety of areas. We have carried out policy studies and offered advisory and evaluation services to systems. We have published and disseminated a range of educational materials and newsletters.

2. resources

During the fiscal year ending September 30, 1974, EDC received $9,660,117 in contracts and grants from the following agencies:

Foreign Governments	$3,250,430
National Science Foundation	2,497,009
U.S. Office of Education and HEW	1,797,383
National Institute of Education	914,778
Agency for International Development	675,260
Carnegie Corporation of New York	295,676
Ford Foundation	60,046
All Others	169,535

3. staff

As of April 29, 1975, 264 full-time staff were employed. Support positions numbered approximately 80; professional staff, 184. In addition, we employ a large number of part-time employees and consultants, often university faculty, and work with many consulting teachers and specialists in public schools across the country.

4. facilities

EDC is headquartered in a large complex of remodeled mill buildings in Newton, Massachusetts. We occupy 81,000 square feet of space at this location and number among our resources a large television and film studio, workshops, labs, meeting rooms, an information center including a staff library, a distribution center, and a printing shop. The Social Studies Program occupies an 8,300 square-foot building in Harvard Square, Cambridge, within walking distance of Harvard University. The Career Education Program in Providence occupies 4,800 square feet in a central-Providence office building and houses a library and resource center. International projects are located in the countries where development takes place, and only an administrative staff remains in Newton. Our curriculum development and teacher training programs in the United States are sited in many schools and teaching centers.

5. structure and programs

At this time, EDC is organized into four project clusters: Social Studies, International Programs, Continuing Education, and Science and Mathematics. Social Studies includes a number of curriculum projects for elementary and secondary schools, implementation and evaluation services, and teacher training, and a new television program. International Programs include curriculum development, resource studies, and institution building in developing countries. Continuing Education houses programs in teacher training, work with principals, training of specialists in special education, work with whole systems in open education, student internships, women's studies, and career counseling for home-based adults. Science and Mathematics includes curriculum development, testing, and television programming, notably for minority 8- to 11-year-olds in mathematics. Support Services are clustered and include a child-care center, a distribution center, and a major television and film studio offering services to projects and other users.

6. R&D processes

Our development style depends on the nature of the project. In curriculum development, we have taken ideas into classrooms at early stages and revised continuously, depending on student and teacher responses. Trial editions of materials have been tested all over the country in a range of school situations. Teacher training is part of development. In institution building, we have organized consortia of universities and specialized schools to help staff and provide training and materials for new technical institutes. In services, we have worked with teachers, students, specialists, administrators, and parents to bring about the changes they sought. In media, we have worked to carry out the intentions of our own projects or of expert committees who called on our services.

7. accomplishments

We have developed some of the major national curricula, starting with the first, the PSSC high school physics course. Among our programs praised by teachers are the Elementary Science Study, Man: A Course of Study, Exploring Childhood, Unified Science and Mathematics for Elementary Schools, People and Technology, Exploring Human Nature, The Arithmetic Project.

We have set up technical institutes in India, Afghanistan, Algeria, and are expanding our work to other countries. We have developed curriculum in elementary math and science for East and West Africa. We have trained change agents in major cities to work in the schools they came from, both in affective and cognitive areas. We have produced film courses in physics, fluid mechanics, developmental biology, molecular biology, mathematics, electrical engineering, materials science, and meteorology. We have introduced open education practices to American schools, and we are developing evaluation methods for this and other areas that reflect the nature of the programs evaluated.

We are preparing a major television series to bring practical mathematical "literacy" to youngsters from all backgrounds, particularly black and Hispanic children.

The Far West Laboratory for Educational Research and Development is a public, nonprofit agency. Its mission is to help children and adults have more and better learning opportunities as a result of research, development, diffusion, evaluation, and technical assistance activities conducted both in the Laboratory and in schools. Its 26-member Board of Directors is appointed by major educational institutions in California, Nevada, and Utah.

Since its establishment in 1966, the Laboratory has focused its principal energies on inventing, validating, and arranging for the distribution of products and processes useful in helping solve problems faced by educators. Recently, the Laboratory also has moved in a full-scale technical assistance enterprise that makes available, under contract, any of its personnel to work with schools and other educational organizations in meeting their immediate challenges.

1. areas of expertise and interest

The major activities of the Laboratory have been concentrated in early childhood education, teaching and training, communication, diffusion, educational management, multi-ethnic education, adult education, and career education. The staff has worked widely in several other areas, such as education of the handicapped, open education, curriculum analysis, parenting, systems theory, evaluation, and basic research.

2. resources

Contract work during the previous fiscal year totaled approximately $5 million. In the current fiscal year (December 1, 1974 to November 30, 1975), contract work is estimated at approximately $6 million. The Laboratory is operating under 20 contracts and subcontracts funded by agencies such as the National Institute of Education, the U. S. Office of Education, The California Commission on Teacher Preparation and Licensing, the Oakland Unified School District, the National Institutes of Health, the Defense Civil Preparedness Agency, System Development Corp., Stanford Research Institute, and various state and local education agencies.

3. staff

Total, full-time employees include 124 professionals and 74 support staff. Nearly all the doctoral degrees are in social science, but many bachelor's and master's degrees are in science, English, the arts, and other areas. Consultants from varied disciplines are retained on an ad hoc basis for specific assignments. In addition, the Laboratory serves as host to a variety of "visiting scholars" such as Len Cahen, Bruce Joyce, Barak Rosenshine, Ray Rist, and David Wiley, who serve on key assignments.

4. facilities

The Laboratory occupies 81,799 square feet of space in its renovated, six-story Center for Educational Development.

In addition to many small and large public-meeting rooms and other technical facilities, the Laboratory leases space on a short-term basis to many other education-related activities.

The Media Service production capability includes complete facilities and personnel for 16mm motion-picture production and color television production, plus support services in sound and audio production, graphic arts, and photography.

The Library houses a complete ERIC microfiche collection and microfiche reader/printer, current subscriptions to over 100 journals and newsletters (plus access to the most frequently consulted reference tools), a collection of documents from other laboratories and r & d centers, and an ever-expanding collection of both general and specific books in the field of education. Also, staff have full access and stack privileges at the University of California libraries.

The Laboratory has its own Varian Model 73 computer that performs inhouse "stand-alone" statistical and business processing; a library of statistical and data-processing programs designed for use in educational research, development, and evaluation activities; and a remote terminal for high-speed, input-output processing for massive computer systems at UCLA's Campus Computing Network and similar locations.

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5. structure and programs

The Laboratory functions with a Director's Council, composed of the laboratory director and eight associate laboratory directors, guiding the work of the various principal investigators who manage specific projects. Each of the associate directors is responsible for a specific function; e.g., research, development, and administration. However, each project manager reports directly to the laboratory director.

- Teaching Research and Development

Beginning Teacher Evaluation Study--For the California Commission for Teacher Preparation and Licensing, the Laboratory has launched a major research program to identify teacher characteristics and skills that offer promise of contributing to pupil performance and attitude in reading and mathematics at the second- and fifth-grade levels. The information gained will be used to plan a large-scale research effort to further test and refine the importance of the skills thus identified.

Effective Teacher Education--Under the auspices of the National Institute of Education (NIE), the Laboratory continues its research to determine the effects upon pupils of teaching skills related to independent learning, mathematics tutoring, and higher cognitive questioning. For these studies, teachers prepared themselves with the help of the Laboratory's earlier Minicourses that use micro-teaching feedback along with instructional and model films, handbooks, checklists, etc., for both inservice and preservice training. As an adjunct to the research effort, work has been completed on several teacher-training products now available from various distributors or for which distribution negotiations are in progress.

Mediated Training Program--For the Bureau of Education for the Handicapped, U. S. Office of Education (USOE), the Laboratory has converted one of its earliest Minicourses (Individualizing Instruction in Mathematics) for use in special education situations where marginally handicapped children are being "mainstreamed" into the regular classroom. The multimedia training materials will help regular classroom teachers individualize their instruction to meet the special needs of these pupils.

Flexible Learning System--Adults who work in preschool through third-grade classrooms and in day-care centers are already being trained with competency-based learning units created under funding from the National Institute of Education. Development and field testing of learning units continued even as others were being used experimentally at Child Development Associate training sites, in preservice and inservice situations, and in Responsive Follow Through Program classrooms across the nation.

Bay Area Teacher Training Complex--In cooperation with the Oakland public schools, where a teaching center has already been installed, the Laboratory has continued production and testing of a responsive skills package that stresses ways teacher responsiveness can enhance pupil initiative (independent learning, inductive grouping, concept attainment, group investigation). The project has investigated possible variations in pupil responsiveness when pupil initiative is low, moderate, or high. Currently several potential products are being field tested.

Protocol Materials--Under contract to the Oakland schools, a final set of protocols has been completed; these carry the generic title "The Process of Change." This package includes a handbook for teachers on the concept of altering sex-role stereotyping and two films, "Changing Images" and "Women Emerging." Negotiations for distribution arrangements for all the earlier protocols were completed when the previous set (Sex-Role Stereotyping in Schools), produced in cooperation with the Stanford Center for Research and Development in Teaching, was placed with Extension Media Center, University of California.

- Career and Vocational Education

Experience-Based Career Education--The NIE has again supported this experimental school program in Oakland. The Far West School has increased its enrollment (10th-12th grades) to 100 students for the 1974-75 school year, almost double the previous year's enrollment. For this alternative to traditional high school programs, the Laboratory continues to strengthen and refine its model that emphasizes learning through direct experience in adult activities, especially in employment settings. The long-range goal is to help students select, enter, advance, and find satisfaction in careers of their own choice.

Career Education Curriculum for Native American Youth--The USOE's Curriculum Development Branch, Bureau of Occupational and Adult Education, has enlisted the Laboratory to develop a curriculum in career awareness, orientation, and exploration for Native American youth, grades seven through nine. The project will prepare curricular materials that foster awareness of self and the world of careers, orient youth toward varied career options and ways of preparing for them, and promote knowledge and understanding of cultural values and of the individual.

Effective Leadership/Membership--With funding from the USOE's Bureau of Occupational and Adult Education, this project is testing the effect of training students in the cooperative group interaction skills needed for leadership/membership roles in the world of work. After identifying skills and understandings that undergird effective leadership/membership functioning, the project will develop an experimental curriculum for use in secondary schools by students entering work-study programs.

- Technical Assistance

Responsive Follow Through Program--The Responsive Education Program, a national r & d effort, continues to operate as one of approximately 22 "planned variation" approaches funded by the USOE's Follow Through division. This year the program has resumed its work with 14 school districts; approximately 330 classrooms, 38 program advisors or trainers, 650 adults, and more than 6,500 children are involved in this exemplary effort.

General Assistance Center--This program is funded under Title IV of the Civil Rights Act of 1964 by the Region IX Office of Education to assist schools in California, Nevada, and Arizona with desegregation. Federal guidelines require that technical assistance be provided in staff training, curriculum services, community relations, needs assessment, administrative modification, and staff-student assignments.

Adult Basic Education--This staff-development project, funded by USOE's Bureau of Adult Vocational and Technical Education serves more than 2,000 teachers, administrators, and volunteers who work with adult basic education students in Region IX.

- Specialized Training

Professional Training--For the NIE, 22 self-instructional learning packages have been completed to provide training resources for those preparing for careers in educational development, dissemination, and evaluation at the entry-professional level. The learning modules focus on planning and design, developmental engineering, evaluation, dissemination, information-data collection and organization, and communication. A diagnostic test instrument covers the six competence areas.

Project ACORDE--In cooperation with the American Association of Dental Schools, the Dental Health Center of the Public Health Service, and the National Medical Audiovisual Center, the Laboratory has completed its work on A Consortium on Restorative Dentistry Education.

Educational Management--NIE sponsored the completion of the remaining products of the Laboratory's series in Instructional Planning to help prepare school personnel to make better decisions about their own programs.

- Marketing Research

Effective Marketing Programming--This study is investigating the effectiveness of a particular scheme for segmenting markets for educational research and development. The work, supported by NIE, builds on the Laboratory's previous experimentation with three educational products. Currently the project is devising marketing-diffusion strategies for particular market segments and testing the prediction that certain strategies will prove most effective with those segments for which they have been specifically designed.

Targeted Information--This project, funded by the USOE's Division of Vocational Education Research, is working to help improve the image and effectiveness of vocational programs to assure full access for low-income and minority youth. The goal is to assure wider participation in existing vocational education programs by enhancing the image of vocational education for target populations.

- Information Systems

Educational R & D Databook--The Institute for Communication Research at Stanford University enlisted the Laboratory's help in an 18-month study to inventory what is presently known about educational knowledge production and utilization. The project aims to provide NIE with descriptive and statistical data on resources, capability, and performance in this domain, as well as documentation of missing data elements.

Information Requirements in Education--Under subcontract to System Development Corporation, this project is analyzing existing information resources in the nation and projecting the dimensions of the total market for education information.

Teacher Center Network--A 14-month survey and design study, under the aegis of NIE, has been investigating the feasibility of creating a national technical assistance and linking facility for experienced American teacher centers and other similar professional support arrangements.

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6. R&D processes

The Laboratory employs a rigorous, multi-phase development process in all its work. Where funding permits, three phases of field-testing are conducted (preliminary, main, and operational) to assure that each completed product performs according to specification in the environment for which it was designed.

7. accomplishments

Laboratory products are in use today in every state of the nation and in a broad variety of foreign countries. Some of its films have won awards, several of its major products have earned top ratings in impartial studies conducted by DHEW, and it has earned a worldwide reputation for its product-development expertise. Currently several Laboratory products are also being transformed abroad for use in other national cultures. More than 16 national organizations are currently producing and distributing a spectrum of 50 different Laboratory products. In addition, on an interim basis, the Laboratory makes available certain other products at cost, while others are sold through the Superintendent of Documents and other federal systems. The Laboratory has established close linkages with schools, intermediate agencies, state agencies, regional agencies, and institutions of higher learning all across the country. Its new technical assistance group stands ready to serve educational, training, and assessment needs anywhere that problems may arise.

The Learning Research and Development Center is a component of the University of Pittsburgh, with the Center's Co-Directors reporting directly to the University Provost.

The central mission of LRDC is to develop, study, and evaluate adaptive educational environments for elementary schools. Adaptive educational environments attempt to match children's abilities to alternative ways of learning and to bring their abilities into a range of competence where they can profit from available instructional alternatives. In pursuit of this broad purpose, and with a strong emphasis on individualized instruction in the classroom and a multidisciplinary approach in its own activities, LRDC has focused its attention in three principal directions: (1) developing and field testing components of classroom instruction adaptive to the needs of different children; (2) developing plans and guidelines for future alternatives in elementary and preschool education; and (3) conducting basic research on the learning and developmental processes of children relevant to education.

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1. areas of expertise and interest

Ten years of outstanding, high-quality studies and investigations in adaptive education have earned the Center an international reputation in the areas of research, curriculum development, and computer support for preschool and elementary school (K-6). Center work in these areas covers:

1. Research	2. Curricula	3. Computer Support
Basic	Development	Computer-Assisted Instruction
Applied	Implementation	Computer-Based Instructional Management
Evaluation and Testing	Evaluation	On-Site System Development
Curriculum Design		Hardware
		Software

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2. resources

The Center's sources of income during 1974-75 fiscal year were the National Institute of Education, the University of Pittsburgh, the National Science Foundation, publishing contracts, and other private support. Total support was $3.1 million.

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3. staff

The Center employes 88 research professionals, 43 support professionals, 36 clerical workers, and 37 graduate research assistants.

Staff breakdown according to specialized areas is: arts and sciences: 49; education: 58; and other professional and technical: 24. Thirty-eight staff members hold doctorates and 36 have master's degrees. The Center staff includes 52 former school teachers, 2 former school principals, and 1 former school superintendent.

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4. facilities

In the spring of 1974, LRDC moved into a new, $8 million building. The nine-story structure includes many features designed specifically for the work of the Center. These special facilities include 3 children's experimental-classrooms and 26 research laboratories. A materials-production section is composed of an electronics shop, a wood/plastics/metal shop, three graphics studios, materials assembly facilities, and an audiovisual lab with two recording studios. Computer services and research make use of three computers--a PDP 15, PDP 7/9 and PDP 11--using a unique Educational Time-Sharing System (ETSS) developed at the Center. The Center has 40 computer terminals, as well as various special peripheral devices developed for experimenters. The building floor space is 55,000 net square feet. LRDC also has access to the extensive and varied facilities and faculty of the University of Pittsburgh.

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5. structure and programs

The Center is structured to carry out one fundamental program: the study, development, implementation, and evaluation of adaptive educational environments for elementary schools. To do this, LRDC is organized into six research clusters and two support services groups, with various projects combined under the appropriate groups. The research clusters are Evaluation, Basic Processes, Language Comprehension, Computer Resource Design, Instructional Design, and School Programs.

Some of the important issues currently being studied in Evaluation are: development of a basic model for instructional program evaluation, with reliable measures of the educational process and the effects of school on individuals; evaluation of instructional programs now being developed at LRDC; development of reliable methods of large-scale field testing; and further development of Criterion Referenced Testing in instructional programs.

In the Basic Processes cluster, researchers are focusing on several aspects of basic cognitive skills such as verbal and memory processes, problem solving, and styles of intellectual functioning. The goal is to analyze intelligence, aptitude, and cognitive style variables in such a way as to identify processes that can be taught and whose improvement would contribute to children's ability to profit from school instruction.

The activity of the Language Comprehension cluster involves the conduct of basic research to discover the processes involved in reading, understanding, and remembering written material, with the objective of defining teachable comprehension skills.

The Computer Resource Design cluster centers on the development of programs to provide instruction and practice in spelling, problem solving, and mathematical computation. Ongoing work is seeking to optimize the usefulness of interactive computer programs for these and other types of instruction.

The cluster also has produced a package of computer programs (currently being field tested) that facilitates the management of computer-assisted instruction by providing for information storage and retrieval, on-line diagnostic testing, and the production of individualized tests, worksheets, and workbooks.

Computer researchers have developed an Educational Time-Sharing System (ETSS), providing a powerful, general-purpose operating system on a smaller computer, the PDP 15.

The computer staff, in coordination with Center researchers, is currently setting up a PDP 7/9 system inhouse for the sole use of Center researchers. The computer is being directly linked to research labs in the Center.

The Instructional Design cluster includes projects in Early Learning, Perceptual Skills, Primary Reading, Math, and Individualized Science.

Instructional programs developed at LRDC now commercially available are: IPI Math, IPI Reading, IPI Spelling, Perceptual Skills, and Individualized Science. Component units of the science program available separately are: Metric Measurement and a "Men and Ideas" filmstrip series.

Two programs presently nearing developmental completion are the New Primary Grades Reading System (NRS) and the Early Learning Program, which includes a Self-Scheduling System component available separately. An improved math program, Individualized Math, is currently under development.

Research also is being done on the fundamentals of curriculum design, including development of a college-level course on curriculum design to be published shortly.

The School Program cluster is concerned with implementation, coordination, and school feedback to researchers. The Center works in two developmental schools: Oakleaf, located in a blue-collar suburban neighborhood; and Frick, an inner-city, predominately Black school. Field testing is carried out in five schools in the Pittsburgh area and seven Follow Through sites around the country.

6. R&D processes

LRDC originated in a desire to apply new knowledge in learning psychology to the classroom, with the conviction that individualized adaptive instruction was the most effective approach to classroom education. The Center founders wanted to bridge the gap between new knowledge being generated in educational research and actual practices in the schools. The inevitable result of this orientation has been a reciprocal influence between researchers and practitioners, and therefore on the Center's r & d processes.

Basic researchers at LRDC are addressing themselves to various questions on how children learn and consequently what are the best instructional strategies for teaching. To do this, the researchers must ask and try to answer specific questions, such as, What memorization techniques do young children use? What skills does a child need to have before he or she can read? Are these skills trainable? The researchers formulate tests that they hope will help answer the questions and then they test children at the Center on a one-to-one basis or in small groups. After conducting many tests, they look at the findings to see what tentative answers are provided to the question being asked.

One general, on-going concern of Center researchers over the years has been to determine in what order children learn different skills or what basic skills are prerequisite for more advanced skills. Findings from these studies have been applied to Center-developed instructional programs in Math, Reading, Perceptual Skills and Early Learning.

A major concern in classrooms throughout the country today is language comprehension. Several research projects at LRDC are studying various aspects of this problem with a view to discovering how different children learn to understand what they read, so that instructional techniques can be developed to train the skills involved.

An early interest of the Center was curriculum development. Curriculum developers first develop their programs at the Center, testing units and levels with children on a one-to-one or small group basis in the Center labs. The program then is introduced into one or both of the Center's developmental schools on a unit-by-unit or grade-by-grade basis. The whole program is not put into the school all at one time. Developers receive feedback from teachers, pupils, adminstrators, and parents. If necessary, modifications are made in the program. Eventually, the program is in use in all the classrooms in the development schools. At this point, if the product appears to be good and workable, it is introduced, at least in part, in some of the schools in the Center's field-testing network. Workshops are conducted periodically with teachers in the developmental and field-testing schools. In addition, Center coordinators continually work between these schools and the Center. Several Center programs have been field tested by Research for Better Schools, Inc., in Philadelphia. For some programs, LRDC and RBS have worked together as co-developers. Once the results from the studies on the field testing are satisfactory, the program is considered ready for commercial publication.

Various methods are used to determine the value of an instructional program. Results on achievement tests are compared with those of students out of the program. Studies are done on nonacademic factors, such as class disruption, pupil attitudes, interest toward school, and pupil-absence records. Rate-of-progress records are kept. An important consideration is reaction from teachers, pupils, administrators, and parents. Further, Center staff spend considerable time in the classrooms for direct observation of a program's implementation.

Evaluators are involved in all phases of the research and development process at LRDC. Because evaluation is a primary concern, several Center projects are devoted to evaluation and testing of existing programs, as well as fundamental improvement in methods of evaluating and testing. Special difficulties occur in evaluating educational programs because of the intrusion of many uncontrollable factors in the classroom. Consequently, Center researchers have recently completed studies that should lead to more accurate assessments of the impacts of new instructional programs.

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7. accomplishments

The Center has developed five commercially published instructional programs:

- Perceptual Skills... in $1\frac{1}{2}$ years has reached 3,000 schools and 50,000 students in all 50 states and 5 countries.
- Individualized Science (IS)... in just three years has been introduced to 135,000 children in 250 schools in 35 states. The IS Metric Unit is being used by 65,000 students in 40 states and Canada.
- Individually Prescribed Instruction (IPI) Math... 90,000 students are using this program in 325 schools in 39 states.
- IPI Reading... used by 32,000 students in 71 schools in 21 states.
- IPI Spelling... just recently available.

Curriculum currently ready for publishing are the New Primary Grades Reading System (NRS) for grades K-3, the Early Learning Program, and Individualized Math, for grades K-2. The Early Learning Program includes a Self-Scheduling System unit which will be available separately.

In research the Center has made pioneering contributions in:

- Individually Prescribed Instruction
- Criterion-Referenced Testing
- Development and application of psychological task-analysis to classroom instruction
- Computer utilization in the elementary school

Several studies at the Center are either completely or partially focused on curriculum design. One study has resulted in a textbook that will be used for college-level courses in curriculum development.

Work at the Center has resulted in many books, countless articles in professional journals, numerous presentations at professional meetings, and 222 papers in the Center Publication Series.

The Mid-continent Regional Educational Laboratory is a private, not-for-profit corporation engaged in educational research, development, and training specifically designed to bridge the gap between educational research and classroom practice. The property and affairs of the laboratory are managed and controlled by a Board of Directors consisting of 18 members, representative of various business fields and professions as well as individuals representative of public and private elementary, secondary, and higher education. The president of the corporation also serves as the executive director of the laboratory.

The basic objective of the laboratory is to create improved educational programs and practices through systematic programs of research and development. This is done by bringing together resources and interdisciplinary talent to focus on a significant educational problem. McREL has the staff competency, facilities, and necessary support systems for large-scale program and product development. Program and product development at McREL include the careful design and implementation of problem/needs assessment and impact assessment studies.

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1. areas of expertise and interest

In addition to demonstrated product-development capability, one of the laboratory's major strengths is its unique relationship as a "regional institution" in serving state departments of education and local school districts. Program development at the laboratory has been viewed as a cooperative effort with school districts, state departments, and higher education institutions in the region. Such an approach has resulted in a higher level of sustained activity and the ability to generate increased capability for building linkages between an r & d institution and local and state education agencies.

The laboratory maintains a strong interest in program development opportunities and activities that include as part of the development strategy a strong emphasis on dissemination/utilization and improvement of practices at the local school level.

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2. resources

The laboratory last year received funds from the National Institute of Education, the U. S. Office of Education, state departments of education, local education agencies, higher education institutions, and private foundations.

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3. staff

Average staff approximates 35 professional and 15 support personnel. Professional staff expertise includes fields of education, psychology, sociology, and psychiatry.

McREL staff members have expertise in virtually all dimensions of the educational change-process. These include the materials development, training, and implementation and evaluation procedures for reaching specified objectives in elementary, secondary, and college-based programs. In addition, McREL staff maintain a close relationship with qualified consultants in leading universities and other educational agencies. These consultants are utilized as needed to supplement McREL staff expertise.

4. facilities

The laboratory's Kansas City location is ideal in terms of centrality, access to major transportation and communication networks, and living conditions. Data processing, media production, and ETV access capabilities of the laboratory have been combined in cooperative arrangements with local universities to provide reliable and cost-effective support systems.

5. structure and programs

The following are examples of the laboratory's current operational programs:

- Models for Inquiry Skills Development and Adaptation: The Inquiry Skills Program disseminates information that contributes to installation of two McREL-developed products: 1) Instructional Staff Development and 2) Inquiry Role Approach. McREL offers installation and training assistance for schools wishing to implement Instructional Staff Development. The product develops teachers' inquiry skills in a variety of grade-level and subject-matter settings. In addition, ISD has been used as a vehicle for improving teacher education curricula and as a program for inservice retraining of college and university personnel.

  For schools interested in the Inquiry Program, McREL provides orientation and installation training on the basis of user need. The Inquiry Role Approach is an instructional system for both students and teachers that requires teams of students to develop problem-solving skills, social skills, inquiry-promoting attitudes, and subject-matter understanding. The program is published and marketed by Silver Burdett Division of General Learning Corporation. As distributed by Silver Burdett, the program materials are designed for secondary school biology; however, the IRA methods are applicable to higher education and to other curricula areas in addition to serving as a vehicle to coordinate methods of instruction and student teaching.

- Cooperative Urban Teacher Education: CUTE is a preservice teacher education program designed to better prepare teachers to work in environmental situations and with youth whose educational and social backgrounds differ markedly from their own. The program currently is utilized in over 100 institutions of higher education. Training and installation assistance is available from the laboratory on a contract basis.
- Curriculum and Staff Development: This program is an expansion and special adaptation of the Cooperative Urban Teacher Education Program. Staff training modules have been developed to assist the school staff (administrators, teachers, and nonprofessional personnel) in improving interpersonal skills and attitudes related to a variety of specific problems experienced in schools today. Two major themes are emphasized:

  (a) Human Awareness: Improvement of human interpersonal skills and attitudes of school staff, parents, and students

(b) Instruction: Improvement of classroom teaching skills, use of curriculum materials and evaluation.

Training and installation assistance is available from the laboratory on a contract basis.

6. R&D processes

The laboratory follows a strict model for conducting research, development, and diffusion. Through the research stage, the laboratory does an educational needs analysis and then a multi-step program-planning process. Following this cycle, the laboratory staff enters a "prototype development and testing of program elements." At this step, the decision is made to either go ahead with pilot testing or to curtail the development. Following pilot testing and another "go-revise-stop" decision point, the product goes out for extensive field testing. The next step involves operational testing of the program's elements, including a final step of selecting a marketing plan. The r & d process concludes with the beginning of the diffusion and installation step.

7. accomplishments

The Mid-continent Regional Educational Laboratory was established in 1966 with a strong regional orientation and the expectation that its program-development activities would maintain close identification with its regional constituents and reflect priorities established at the local and regional level.

The laboratory has maintained this relationship over the years, even during times when federal funding priorities shifted elsewhere, by replacing federal support with local and regional support. This ability to shift funding is considered by the laboratory to be a major accomplishment in terms of its original mission.

In addition to the maintenance of its regional "service orientation," two major programs with national impact have been developed by the laboratory: Cooperative Urban Teacher Education (CUTE) and Inquiry Role Approach (IRA).

The Cooperative Urban Teacher Education program is a nationally recognized preservice teacher education program designed to better prepare teachers to work in environmental situations and with youth whose educational and social backgrounds differ markedly from their own. CUTE has been implemented successfully in 30 major urban localities across the country with the participation of over 100 institutions of higher education. More than 2,500 preservice teachers have been trained in the program as of the end of 1974.

CUTE received the Distinguished Achievement Award conferred by the American Association of Colleges for Teacher Education in 1970. CUTE was cited by the U. S. Commissioner of Education in the Education Professions, 1969-70, as one of three innovative programs "that have made outstanding attempts to bring together many of the elements necessary for a realistic, practical preparation for teachers of the . . .disadvantaged." In May of 1971, CUTE was selected by Educational Testing Service from among 52 programs as one of the top five Office of Education programs to be given priority for dissemination and diffusion by the National Center for Educational Communication. The Office of Education honored CUTE again by selecting it as one of ten programs to be displayed in traveling exhibits at various sites around the United States. In the fall of 1971, CUTE was selected by the Office of Economic Opportunity as one of a select group of outstanding programs for the preparation of inner city teachers.

A specially adapted component of CUTE for inservice teachers and administrators, which incorporates major themes of the program into a variety of flexible training modules, is growing in its impact on educational staff development programs. Target populations involved include school board members, administrators, teachers, support personnel, parents, and noneducational groups such as correctional officers and social workers.

During the past 4 years this training has been delivered to approximately 21,000 participants at 61 sites in 14 states.

Inquiry Role Approach, an instructional system for teaching secondary biology, is based on the premise that biology content understanding, inquiry skills, social skills, and attitudes are interdependent and can be achieved best in a program that integrates them. IRA is currently published and marketed nationally by Silver Burdett, a division of General Learning Corporation.

Evaluation studies show that IRA students exhibit significantly higher achievement for inquiry skills and attitudinal qualities than non-Inquiry Role Approach students.

Teachers', students', and the educational community's reactions to IRA have been enthusiastic. Program reviews conducted by leading science educators (including the president and a past president of the National Association for Research in Science Teaching) indicate that the program represents a significant positive development in the science education field.

The laboratory's inquiry materials have been used in the following states: California, Colorado, Iowa, Kansas, Louisiana, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, Oklahoma, Texas, and Virginia. It is estimated that during the current school year Inquiry Role Approach is utilized in some 350 to 400 classrooms.

The film, Learning Through Inquiry, produced on IRA in 1971 has remained the "best seller" of inquiry films by I/D/E/A for the past four years. Over 150,000 educators have viewed the film on a rental basis, and numerous copies have been sold. A McREL survey revealed that agencies renting the film included as many colleges as local school districts.

The Northwest Regional Educational Laboratory is a private, nonprofit corporation governed by a 27-member Board of Directors. A total of 822 member institutions participate in cooperative planning, development, evaluation, and dissemination activities.

The mission of the Laboratory is to improve educational processes by developing educational products and procedures based on scientific knowledge and technology and by assisting institutions, organizations, and agencies in installing and using effective products and procedures.

The Laboratory is organized and staffed to respond quickly to both national priorities and local needs. The strategy for achieving Laboratory goals involves:

- Identifying problem areas by assessing needs, obtaining information from people in educational institutions and other agencies, and conducting surveys and feasibility studies
- Utilizing a systematic procedure to produce products and processes designed to meet identified needs
- Maintaining close working relationships with other institutions--state agencies, colleges, schools, industries, and community groups--to carry out this work

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1. areas of expertise and interest

The Laboratory's Board of Directors places high priority on the following activities.

Develop, evaluate, and disseminate materials and procedures designed to assist educational agencies and communities to improve their educational efforts:

- Instructional systems that increase process skills of students and personnel of schools and other education/training projects
- Materials and procedures related to processes for intergroup efforts in educational improvement, including the community
- Materials and procedures particularly suited to special learning environments
- Materials and procedures for increasing language skills
- Instructional systems that increase skills in using new technology in education
- Strategies that strengthen school-community relationships and local problem-solving capabilities

Conduct both development and technical assistance activities focusing specifically on the promotion of career education:

- Systems for identifying needs and making educational materials and methods readily available for local career educational projects in usable forms
- Materials and procedures that promote career awareness, exploration, and training

- Materials and procedures for training personnel who work with special populations including, but not limited to, adult and manpower groups

Assist educational and other agencies in adapting, installing, using, and evaluating effective products and procedures by:

- Conducting training and providing technical assistance to people in installing, using, and evaluating products of NWREL and other r and d institutions
- Designing and conducting training and technical assistance for personnel of schools and other education/ training projects to be more effective with their target populations
- Developing and conducting training systems and providing technical assistance to increase effectiveness in planning, managing, and evaluating educational programs
- Disseminating and/or validating promising products and procedures developed by other agencies and institutions
- Assisting state and local education agencies with assessment of educational outcomes

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2. resources

Laboratory work is conducted under contracts with federal agencies (the National Institute of Education, U. S. Office of Education, National Science Foundation, Army Research Institute), state agencies, institutions of higher education, school districts, businesses, and community groups.

Contract work during 1974 totaled $6.1 million.

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3. staff

The Laboratory is staffed by 210 full-time employees. More than a third hold advanced degrees, including 43 doctorates. Among the specializations of staff members are research-evaluation-measurement, planning, system technology, computer programming, adult education, organization theory, manpower development, community education, organizational development, occupational education, and information science.

In addition, many staff members at the Laboratory's 822 member-institutions are available as consultants for carrying out highly specialized tasks.

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4. facilities

The Laboratory headquarters occupies 50,000 square feet of modern office space in downtown Portland, Oregon. Field offices are established as needed to carry out contract work.

A Media Center provides printed, audio, and visual materials. The Data Processing Center maintains a staff of key punchers, programmers, and other computer personnel to work with the research and evaluation staff. Formal arrangements with the Bonneville Power Administration, Washington State University, and Oregon State University provide access to a wide range of computer hardware and services, both direct and through terminals at the Laboratory.

The Laboratory's Information Center includes the complete ERIC (Educational Resources Information Center) collection and has access to 20 additional information bases through the Lockheed Retrieval System.

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5. structure and programs

Laboratory work is carried out in 14 programs administered through four divisions.

Career Education Division--The division was organized to respond to the national priority in career education. Activities in this division have two goals: (1) design and help implement effective career education programs for youth and (2) design and conduct training programs for instructors and other staff members of local career education projects.

Career Education Program--The Laboratory is developing an experience-based model for career education, where all "school" subjects--math, English, science, etc.--are tied in with direct job-learning situations under the management of employers. The Laboratory now is managing the trial of this alternative program for juniors and seniors in a suburban area of Portland and the program is being replicated by other districts.

Area Manpower Institute for Development of Staff--Western AMIDS provides training for local manpower training personnel in 11 Pacific and Western states and territories in such areas as: (1) human and cultural awareness; (2) instructional methods; (3) curriculum development and adaptation; (4) guidance and counseling; (5) management and administration; and (6) interagency cooperation.

Manpower Counselor Training Project--To help prepare counselors who work with manpower trainees, the Laboratory is working with Oregon State University and Portland State University in developing and conducting a model training program for the preparation of manpower counselors.

Adult Education Program--A regional consortium is providing training for teachers of adults in Alaska, Idaho, Oregon, and Washington. A competency-based program is being developed for training career education counselors of adults.

Curriculum Development Division--Curriculum materials are being developed for students with particular needs and for utilizing new educational technology.

Intercultural Reading and Language Development--Culturally relevant reading and language materials and associated teacher-training programs are being developed to facilitate appropriate uses of computer technology by school administrators, teachers, and students to effect educational renewal.

Project PLANIT--PLANIT (Programming LANguage for Interactive Teaching) is a general-purpose language for computer-assisted instruction. It is being developed for use with a variety of computers providing time-sharing services.

Alaska Teleoommunications Project--Assistance is being provided to the Office of Telecommunications in designing 100 television programs for broadcast via satellite to Alaskan children.

Instructional Systems Division--Instructional systems being developed combine printed and audiovisual materials with step-by-step procedures to increase specific skills or to acquire specific pieces of knowledge.

Improving Teaching Competencies Program--Instructional systems developed in this program are designed for inservice workshops or campus courses for school administrators and teachers. Each system provides 30-100 hours of training to increase specific capabilities to: (1) encourage pupils to be active learners; (2) use teaching techniques that help students learn; (3) use effective planning and problem-solving techniques; (4) use basic interpersonal skills; and (5) provide for continuous growth of teachers.

Rural Education Program--Products and procedures are being developed to enable people in rural areas to change both their school systems and their communities toward providing more appropriate and effective learning experiences for youth. The program emphasizes the development of training systems for people who are to be involved in educational change and materials that suggest and support new structural patterns and participatory decision-making for rural schools and communities. 68

Technical Assistance Division--The division provides technical assistance to state and local education agencies to meet their specific needs. This assistance concentrates on the areas of planning, management, and evaluation of local efforts to improve educational practices.

Evaluation and Audit Projects--The Laboratory is assisting state and local agencies to meet the needs of evaluation services, educational auditing services, and training workshops in auditing and evaluation.

Assessment Projects--The Laboratory is assisting state and local agencies to meet their increasing need to assess student performance through: (1) Clearinghouse for Applied Performance Testing and (2) Statewide Assessment Projects.

Samoa Education Project--The Laboratory is providing technical assistance in the development of program plans, including the development of evaluation designs; and training in program planning, management and evaluation.

Experimental Schools Evaluation Program--The Franklin Pierce School District near Tacoma is an Experimental School site operated under the National Institute of Education auspices. The Laboratory is evaluating and documenting the results.

6. R&D processes

Needs Assessments--The Laboratory assists both state and local agencies in assessing needs. This work emphasizes the assessment of needs from the "bottom up"; that is, the target group is the primary source of data about their needs, rather than agency personnel determining what their needs are "from above."

Searches--Searches of existing knowledge and processes, which have been shown to be effective elsewhere, are conducted in the planning of Laboratory activities and in assisting other institutions meet their needs.

Training--Laboratory training activities range from the design of training materials to conducting training for a wide range of personnel in a variety of subject areas.

Development of Curriculum Materials--The Laboratory emphasizes a field-oriented approach to development; that is, the eventual users of materials work with the Laboratory in designing and writing materials. Sites similar to those where the completed materials will be used are selected for field testing.

A systematic process is utilized for development, including progression through six phases: planning, design, prototype, interim product, final product, and dissemination.

Modifying Curriculum Materials--Each institution, site, or target group has particular needs. While model materials and procedures provide a basis for meeting their needs, they may need to be adapted for particular purposes and circumstances. A systematic method is used for this adaptive process, just as a systematic process is used for product development. It emphasizes a local needs assessment as a beginning step; usually less extensive testing is needed in the adaptation of existing materials than in development of materials "from scratch."

Field Testing and Evaluation of Curriculum Materials--Extensive field testing is conducted as an integral part of the curriculum development process. Testing is conducted for two purposes: (1) to provide developers with information for making needed revisions in materials and (2) to determine the achievement of state objectives by people using the materials.

Evaluation/Assessment Instruments and Procedures--The Laboratory assists other agencies in evaluation and assessment work in two ways.

Availability of Instruments and Procedures--The Clearinghouse for Applied Performance Testing located at the Laboratory collects existing instruments on a nationwide basis, evaluates them for appropriate uses, and assists people in selecting and using them.

Evaluation of Project Effectiveness--The Evaluation Unit uses an "evaluation by objective" approach. This entails organizing the work of a project into components such as management, instruction, and development. The work on each component is then organized into a series of tasks and each task is converted into a performance objective. The performance objective may entail the use of a particular procedure (i.e., process objectives) or the objective may specify an outcome (i.e., product objective).

At least one evaluative question is posed for each performance objective. Subsequently, an evaluation procedure is devised to secure an answer to each question. Each completed evaluation plan then contains the entire array of performance objectives, evaluative questions and associate evaluative procedures with timelines for completion. An important result is the production of a management plan which guides future project efforts.

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7. accomplishments

Fourteen thousand educators across the United States benefited directly during 1974 from programs conducted by NWREL in cooperation with state education agencies, institutions of higher education, schools, and other agencies. Incalculable numbers of students--from preschoolers through adults--subsequently are benefiting from their teachers' increased capabilities and their use of more effective teaching materials.

More than 660 workshops and training sessions were conducted last year by the Laboratory staff and by other institutions using NWREL materials and procedures. Participants in this training included nearly 10,000 teachers and administrators in elementary and secondary schools, 1,100 teachers of adults, and 3,000 instructors in community manpower programs.

New materials are designed to meet special needs: development of reading skills of Indian students, career development for high school students, use of computers in schools, oral language and health education for Alaskan children, training for counselors, and testing and assessment of student performance.

Services provided by the Laboratory have ranged from the evaluation of innovative programs in local school districts to training in program management techniques for personnel in government agencies.

Research for Better Schools, Inc., is a private, nonprofit educational laboratory established in 1966. It is governed by a 21-member Board of Directors representing educational and business institutions in the tri-state region of Pennsylvania, New Jersey, and Delaware.

RBS' mission is to restructure education through the development of individualized and humanized instructional materials for preschool through adult populations and to provide the support services necessary to effectively install these materials in educational settings.

1. areas of expertise and interest

RBS expertise goes far beyond curriculum development. The corporation offers a broad range of educational research and development services including needs assessments, school-management programs and workshops, planning, implementation, and diffusion services, program monitoring and evaluation, training of educational personnel, and the design and conduct of local educational improvement programs. Some areas where RBS expertise has been utilized in the past include basic-skills development, affective-skills development, early childhood education, career planning, educational technology, and school administration.

2. resources

RBS is supported largely through contracts with the National Institute of Education. During the current fiscal year, work also is being done for the Office of Child Development, the Army Research Institute for Behavioral and Social Sciences, the Pennsylvania Department of Education, the State of Delaware, and the National Science Foundation.

Contractual agreements in preceding years have been with the U. S. Office of Education, the U. S. Navy Training Command, New Jersey Department of Institutions and Agencies, International Business Machines, the Hewlett-Packard Corporation, Harrisburg (Pa.) City Schools, Radnor (Pa.) Township School District, and the National Science Foundation.

3. staff

RBS staff is composed of approximately 100 professionals and skilled technicians from a breadth of educational backgrounds, including the behavioral sciences, traditional academic disciplines, educational administration, and a host of related fields. The corporation also employs writers, editors, and production specialists along with over 50 support personnel.

The level of academic achievement attained by professional staff includes 22 doctorates. Some areas of staff expertise are systems analysis and conceptualization, cost-benefit analysis, program evaluation, research design, school administration, organizational management, and comprehensive planning.

Besides its own full-time staff, RBS regularly contracts with over 70 external consultants to review or assist in research and development activities.

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4. facilities

RBS occupies about 40,000 square feet of the Industrial Valley Bank Building in center-city Philadelphia: Corporate facilities house not only offices and conference rooms, but also library components within each of the major program divisions. Library holdings include over 7,000 books, 300 periodicals, 5,000 reports and reprints, and the entire ERIC collection of 109,000 microfiche. RBS employees also have unrestricted access to libraries at both Temple University and the University of Pennsylvania.

Production facilities house various types of printing and audio-visual equipment. Printing equipment includes two 2850-AM offset presses; two high-speed collators; two Bruning paper plate-makers; one 3M plate-maker; stapling, GBC binding, and hole-punching equipment; and four units of IBM typography equipment. Audio-visual equipment enables the laboratory to produce various-size pictures, filmstrips, and cassettes. In addition, RBS deals with many external vendors and with the Government Printing Office when contractual requirements dictate the necessity for these outside services.

Complete data-processing services are available to RBS at the University of Pennsylvania's Computer Center, one of the most advanced computer centers in the area. The corporation also has full access to the optical-scanning facilities at the Research and Measurement Center at Temple University. Additional data-processing services, i.e., keypunch, duplicating, sorting, etc. are available within the same building as RBS.

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5. structure and programs

Six major divisions, or programs, contribute to RBS research and development activities. Each has a separate but complementary focus.

The first, the Individualizing Learning Program (ILP), concentrates on building instructional materials, methods, and management systems that teachers can use to respond to individual student needs in basic subject areas. The program also provides onsite support to school staff in identifying and solving problems of curriculum implementation. A second major ILP thrust is the investigation of alternative futures of society and the implications of those futures for education.

The Humanizing Learning Program (HLP) designs multimedia curriculum packages that teach essential life-skills such as setting and achieving one's own goals, interacting with others, and critical thinking, decision-making, and problem solving. HLP also regularly collects and publishes information resources on humanizing learning.

The Administering for Change Program (ACP) develops and disseminates practical, competency-based materials that assist local, regional, and state educational personnel in installing, managing, and evaluating educational innovations. ACP staff frequently are called on to supply expert knowledge for short-term administrative training programs. A current work scope involves the operation of a regional network through which the program is providing technical assistance in the assessment of educational needs, and the planning, management, and evaluation of school practices in school districts in New Jersey, Pennsylvania, and Delaware.

The Career Education Program (CEP) develops materials and methods that help learners to become familiar with, and make rational decisions about, careers. In conjunction with the School District of Philadelphia and the Greater Philadelphia Chamber of Commerce, CEP operates an experience-based model of career education in a local high school. The model includes an extensive set of curriculum materials and procedures, a knowledge based for evaluation, and a plan for replication and dissemination.

The Early Childhood Program (ECP) is cooperating with the Community College of Philadelphia and the School District of Philadelphia in developing an individualized, competency-based, replicable training program to enable early childhood teacher-aides to become skilled and credentialled child-care workers.

Finally, the Educational Technology Program (ETP) designs and implements instructional systems and management procedures that use cost-effective computer technology.

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6. R&D processes

All projects conducted by RBS are thoroughly conceptualized, researched, designed, and tested. Throughout the year, RBS conducts meetings and seminars with teachers, principals, superintendents, and state education officials so they can tell laboratory staff what they need. This continuing dialogue with educators assures RBS that its programs and strategies are appropriate to accomplish a particular task or goal. Basic research, literature searches, and consultations with experts reveal what is known about a problem and what still needs to be known.

Second, developmental staff formulate an instructional hypothesis that includes a description of the project, how it will be carried out, and what will be gained by doing it. After these points are reviewed and critiqued, staff begin to develop a prototype that includes specific objectives, tests, instructional materials, a management system, and a teacher-training unit.

As materials are developed, appropriate feedback systems and evaluation strategies measure the effects of each component within a particular program. Revisions are made accordingly and the component is again tested in schools.

A product is released for widespread dissemination only after it has demonstrated its validity in user settings and has shown that it does what it is intended to do.

Not every development effort undertaken by the laboratory has necessarily been initiated by RBS. This laboratory recognizes that potential products and capabilities are developed by other change agents. Thus some are adapted for individualization and further refinement by RBS.

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7. accomplishments

RBS is recognized widely as a leading agent of educational change. Students using its instructional programs during the 1974-75 school year number over 300,000. Five of these programs are available from commercial publishers; several others can be obtained directly from RBS.

The best known of these programs is IPI Mathematics, developed jointly by RBS and the Learning Research and Development Center at the University of Pittsburgh. When first introduced in the mid-sixties, IPI drew nationwide attention to the fact it is possible to individualize instruction within the framework of mass education. Today, IPI Mathematics is being distributed nationally by the New Century Education Corporation.

As a result of experience with IPI, the program's concepts and strategies have been applied to a new junior high school mathematics curriculum. Other programs of individualized instruction have been developed in reading, spelling (available from the Follett Publishing Company), science (available from the Imperial International Learning Corporation), and social education. RBS also has adapted the IPI model to a comprehensive, adult basic-education curriculum called Individualized Learning for Adults (ILA). The ILA Mathematics and Communications Skills Programs have been successfully used as remedial education programs for functionally illiterate Navy recruits as well as for inmates in six correctional institutions in New Jersey.

In addition to building curricula in traditional-school subject matter, RBS has developed curricula that achieve important new learning goals. These curricula center on the student as a "whole" person and an effective human being. Their content is about real life problem-solving: how to achieve one's goals, how to interact and get along with others, and how to collect, evaluate, and use information. The most advanced of these curriculum packages, Achievement Competence Training, is published by the McGraw-Hill Publishing Company.

RBS recognizes, however, the new curricula by themselves will have little impact in improving education unless personnel in schools adopting the new programs know how to plan and manage their implementation. To assist teachers and administrators in effectively introducing curriculum improvements, RBS has identified a series of critical-skill areas for school personnel and developed appropriate instructional materials for each. Three such instructional modules are Handbook of Comprehensive Planning in Schools, published by Educational Technology Publications, Project Management Basic Principles, and Project Management Executive Orientation. The latter two modules are available from RBS.

In the area of career education, RBS has developed and installed an operationally tested model of career education in Philadelphia's Olney High School. The program provides students onsite, firsthand experiences in local businesses and industries, individual counseling and guidance, and basic-skills development. About 80 Philadelphia employers have opened their facilities to the students. The model is now in its third year of operation. With technical assistance from RBS, it is ready for replication in other schools and districts.

RBS' study of how current social trends will effect schools of the future has culminated with the development of four alternative educational designs for the next decade. Each design focuses on an adaptive and personalized learning environment that offers individualized instruction, affective education, technology-assisted instruction, and community participation. As part of this project, RBS conducted two national symposia where distinguished educators and social scientists presented their ideas on planning schools for the future. Proceedings of the first symposium, held in October 1973, have been published by Allyn and Bacon, Inc., under the title, The Future of Education: Perspectives on Tomorrow's Schooling. Allyn and Bacon will publish the proceedings of the second symposium, "Anticipating Tomorrow's Schools" held in February 1975.

Other recent RBS projects have involved the State of Delaware in assessing its effectiveness in upgrading science and mathematics instruction through the development, implementation, and documentation of a technical evaluation plan and accompanying management system; conceptualizing and conducting an analysis of costs and effectiveness of two army training programs for the Army Research Institute for Behavioral and Social Sciences; and helping the Pennsylvania State Department of Education in planning and conducting a series of workshops for administrators on high-priority educational problems; e.g., educational planning, evaluation, and teacher education.

The Research and Development Center for Teacher Education was established at The University of Texas at Austin in 1965. The Center was built on a foundation of about eight years of previous research, development, and demonstration projects focused on the development and evaluation of integrated, personalized training systems for preservice teachers. These projects were supported by the Hogg Foundation for Mental Health, the National Institute of Mental Health, and the U. S. Office of Education. This support, subsequent support as a center, and that provided by the University, made possible the recruitment and maintenance of an interdisciplinary team of researchers, developers, practitioners, and consumers focusing their efforts on a programmatic approach to the development and evaluation of high quality preservice and inservice teacher education programs.

As tested products became available, the Center developed a collaborating network of teacher education institutions committed to the installation of various components of the Personalized Teacher Education Program. The Center has similarly developed collaborative relationships with state agencies and public schools committed to research on the teaching-learning process and to the adoption of innovative, individualized approaches to instruction.

1. areas of expertise and interest

The interdisciplinary staff brings to its basic and applied programmatic research a variety of disciplines and interests. Included are: psychology (educational, experimental-social, developmental, counseling); curriculum and instruction (science education, competency-based education); preservice and inservice teacher education; special education; instructional systems development and evaluation; assessment and observational system development (tapping status and change of cognitive skills, perceptions, attitudes, coping styles and work performance) for children, prospective teachers, inservice teachers and teacher educators; evaluation design, methodology and implementation; computer systems; assessment of planned institutional change; and research literature search and analysis.

Some staff members have extensive experience and skills as school-based and college-based internal and external adoption agents. In addition, the Center has collaborative access to an array of scholars, researchers, and practitioners in its own university community and to more than 50 teacher-training institutions and innumerable schools in the United States and Canada.

2. resources

Up to the present time, the sole external source of support for Center activities has been the National Institute of Education, and prior to its establishment, the U. S. Office of Education. During the current fiscal year, contracts total approximately $870,000. In addition, the University provides local support in several forms including released time for faculty members in joint appointments supported by University funds.

3. staff

The Center staff consists of 55 to 70 trained professionals and support personnel (full-time equivalent 35-45), the number depending on the time of year and developmental phases of the projects. Of the professional staff, 12 hold doctorates and 19 more will soon complete theirs. The remaining staff has been selected carefully to provide needed research, secretarial, and clerical support services.

4. facilities

The Center is housed in a wing of an existing university building. This wing provides 21,550 square feet of floor space totally reconstructed internally to specifications of the Center staff.

The main University of Texas computing facility consists of two computers (CDC 6600-6400) linked together to provide a multiprogramming-timesharing system. Two modes of access to this system are maintained by the Center: a remote job-entry terminal allows high-speed batch processing of card-punched programs and data; data processing also is accomplished by means of interactive teletype communication terminals utilizing standard telephone lines.

5. structure, programs, and R&D processes

In response to emerging priorities within the National Institute of Education, the Center is currently organized around four major projects with funding contracted through August, 1976. Each project, while heavily research and evaluation oriented, is built on the Center's long-developed perspective and capability for programmatic research, development, and dissemination addressed to real-world educational problems.

- The Evaluation of Teaching Project--This project is exploring and clarifying methodological issues and problems in teacher-effectiveness research, with the goal of suggesting refinements, which may lead to improvements in the quality of research in the field. A data base collected in fifth-grade classrooms during the 1974-75 school year is being used as input for these methodological studies. During fiscal year 1975, the project staff will be concentrating on ten major tasks, including the following:

  (a) development of computer programs and a computer-program manual for the analysis of aptitude-treatment interaction (ATI's);

  (b) development of strategies for the identification of chance-produced significant results in large, multivariate studies;

(c) preparation of reports comparing or contrasting the relationships found between teacher behaviors and student outcomes in analyses of project data, where several different analysis techniques are employed;

(d) preparation of a sourcebook of classroom research and teacher evaluation instruments.

Representative of one aspect of the capability of this project's staff was the design and completion of a major summative evaluation study of the Center-developed Personalized Teacher Education Program. This work incorporates promising methodological refinements in the evaluation of complex programs in reality settings.

- The Teacher-Learning Interaction Project--This project is committed to two main objectives:

(a) the development of valid methods for assessing the effects of individual learners of both cognitive and affective influences from instructors, the administrative system, peers, family, and subculture.

(b) the development, testing, and dissemination of methods for improving the effects of each of these influences.

The current phase of the project is a basic research study that investigates how particular teaching strategies [illegible] individual students from a variety of socioeconomic and cultural backgrounds. Working with 57 volunteer teachers and 1,800 sixth-grade Black, Latin, and Anglo pupils from the Austin, Texas, schools, and with 27 teachers and 900 pupils from the fourth through seventh grades in the Daviess County, Kentucky, schools, the project is assessing children's learning of basic skills, attitudes, self-concept, and coping skills. Parallel assessment and observational data on teachers are being collected. By relating specific teacher characteristics, attitudes, and behaviors to student outcomes, this project seeks to identify the most effective ways to teach particular kinds of children.

Statistical models and instruments have been developed that can identify the effects of different kinds of instruction (or instructors) on different kinds of students. A system has been devised for identifying the objectives of an educational program, identifying the specific learning needs of individual students at the outset (affective as well as cognitive), describing the instructional process, and measuring the effects on individual learners by the end of the program.

Some of the assessment and observation instruments are also being used, currently, to evaluate the effects of preservice training on inservice teaching behavior and its effects.

- The Correlates of Effective Teaching Project--The main objective of this project is to expand the number of teaching principles based on documented findings from systematic classroom research. The problems and processes studied have been selected on the basis of observation of, and consultation with, teachers and school personnel. We are not attempting to develop new curricula or methods so much as we are attempting to study classroom processes to discover how these processes can be conducted to the greatest advantage of teachers and individual students.

The project concentrates on four major tasks;

(a) Analysis and reporting of an observational study attempting to link teacher characteristics with student learning-gains in second- and third-grade classrooms.

(b) A study--following an earlier work on teacher expectations and attitudes--designed to identify student attributes that influence teachers' expectations and attitudes (the "Student Attribute" study).

(c) The Junior High School Study, a follow-up on the earlier second- and third-grade study of the influence of teacher characteristics on students' achievements. The work is carried on in seventh and eighth grade English and math classrooms. Student attitudes and achievement are used as criteria, and data are taken on individual students as well as the class as a whole. Each teacher is observed in two separate sections to take into account the effects of intact classrooms of students on the behavior of teachers.

(d) The first-grade study, an experimental study involving comparison of two treatment groups (one being observed and one not) and one control group. Group comparisons and correlational data will reveal the degree to which 21 principles of small-group instruction were successful in producing student learning-gains in reading and the degree to which training was successful in causing teachers to implement the principles systematically.

The project's programmatic research is characterized by (a) concentration of teacher-student interaction in field settings under naturalistic or primarily naturalistic situations; (b) collection of a broad range of data (presage and process, high inference and low inference, cognitive and affective); (c) use of multiple criteria of teacher effectiveness; (d) control for context factors known to be important; (e) multivariate design and data analysis procedures, including analyses of linear and non-linear relationships; and more recently, (f) collection of data on individual students as well as on the class as a whole.

- The Procedures for Adopting Educational Innovations Project--The project is committed to research and development efforts that will make the process of adopting innovations more economical, efficient, and personalized. This work is based on the experiences of practitioners and the literature by way of a well-defined conceptual model, the Concerns-Based Adoption Model (CBAM). Measurement procedures for quantifying change as experienced by the individuals involved are being developed, researched, and employed by change specialists as diagnostic and prescriptive tools. The project's work has implications for managers of the change process and product evaluators alike.

Due to the heavy field orientation of the project's work, many school practitioners (especially elementary) and teacher training institutions are cooperating in data collection. Over 400 teachers and 400 professors have been participating in a set of longitudinal studies of innovation and implementation. The study design has entailed a specially developed psychometric questionnaire and interview. Striving to establish and maintain rapport to obtain valid data from practitioners and then providing relevant feedback have also been important concerns of the project.

Recent accomplishments include (a) the development of a model that describes the collaborative, highly adaptive and systematic process of innovation adoption and implementation, especially as seen and performed by the individual members of the user system; (b) development of two measurement systems for effectively assessing innovation user concerns and their level of use of an innovation; (c) collection of quantitative data in both schools and colleges that appear initially to verify the existence of the criterion variables defined in the model.

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6. accomplishments

Through its ten years of functioning as one of the national centers for research and development, this center has contributed to the knowledge base, to the methodology of programmatic research and development, and to the study and management of the educational change process within the broad domain of teaching and learning. A few specific accomplishments follow:

- The development and evaluation of a total system of preservice teacher training based on an explicated conceptual model calling for vastly increased individualization and personalization of both instruction and field-based experience.
- The development of assessment, feedback, curricular, observational, and evaluation systems to support the implementation of this system.
- The development of training materials for teacher educators implementing the system.
- The development of change agent and consultation strategies to provide support to institutions coping with the change process catalyzed by adoption of the system.

- The application of assessment and observational techniques to evaluate the effects of different teacher-education programs on the teaching skills of their graduates.
- The development of sophisticated though practically useful systems for assessing teacher-student interaction (dyadic and group) in naturalistic situations, for educating teachers in the instructional application of such knowledge, and for evaluating effects of interventions utilizing high and low inference, cognitive, and affective pupil-gain criteria.
- Development of an internationally validated system for describing and assessing effective coping behavior and the reporting of research on the effects of nationality, ethnicity, socioeconomic status and sex on school performance, career motivation, and coping skills in eight countries.
- Methodological advances in the evaluation of change in any measurable aspect of human behavior, including corrections for instrument reliability, effects of covariance of measures, multiple linear-regression analysis that takes account of curvilinear relations, and computer-graphing programs for generating visual displays of quantitative results.
- Development of a model for assessing institutional changes that accompany the adoption of an innovation, and validation of the model with respect to the developmental concerns and needs of individual adopters and to levels of use of the innovation.
- Innumerable contributions to the scholarly research and practitioner-oriented literature in teacher education and the teaching-learning process.

The Southwest Educational Development Laboratory is a private, nonprofit corporation, organized in 1966, and based in Austin, Texas. It is governed by a 22-member, multiethnic Board of Directors, through its executive director.

The Laboratory makes maximum use of its corporate capabilities in working with local, regional, state, and federal agencies to conduct research on needs of multicultural populations, to develop innovative educational programs, to meet these needs, and provide technical services and training.

1. areas of expertise and interest

Among the Laboratory's particular areas of expertise are curriculum design, development, testing, and evaluation. Using agreed upon criteria, major programs are conceptualized and designed to meet research-based needs. The Laboratory also has established capabilities in product-oriented training, media and television technology, research and evaluation, and planning.

2. resources

Sources of income for the current year include the National Institute of Education; USOE-Follow Through and Bureau of Handicapped; Migrant, Office of Child Development; California Migrant Education Social Science Research Council; American Speech and Hearing Association; National Educational Laboratory Publishers; Central Texas College; and local and state-based educational service centers and agencies. Dollar volume for the fiscal year totals $3,183,327.

3. staff

Through an active personnel recruitment program, the Laboratory has attracted a professional staff with extensive experience in the areas of early childhood education; bilingual education; special education for handicapped children; research and evaluation; mathematics and science education; systems and systems analysis; linguistics; learning theory; reading; curriculum and instruction; and teacher training. Currently, the Laboratory employs a tri-ethnic staff of 109 professionals and 46 technical support and secretarial personnel.

The Laboratory also utilizes outstanding scholars and professionals from throughout the nation for assistance in the areas of program development, management counseling, evaluation and research, and institutional liaison.

4. facilities

The Southwest Educational Development Laboratory occupies six floors of a new 13-story office condominium in downtown Austin. The Laboratory's 51 percent ownership was made possible by a $4.1 million grant from the Office of Education. Close proximity to the State Education Agency, the State Capitol and its library and archives, and the University of Texas at Austin and its major library and computer resources provides direct access to additional resources.

Laboratory special-purpose areas include:

- Two soundproof recording studies equipped to produce broadcast quality reel-to-reel and cassette tapes. Also, audit duplicating equipment is available.
- Television studio and control room equipped to produce and edit broadcast quality two-inch color video tapes.
- A microwave facility connected directly to the broadcast color studio with bi-directional television conference room permitting interactive communications. (Part of the Texas Telecomputer Grid for transmission of instructional TV and educational computer data.)
- A learning center for young children containing kitchen, miniature toilets, one-way observation glass, two equipped classrooms with remote control monochromatic TV cameras and a TV control center with audio and video taping capabilities.
- A computer room with auxiliary air-conditioning equipment and a computer-type floor, and an IBM System/3 computer with support keypunch and reader equipment is based in the area.
- Computer photographic center with darkrooms equipped for color and monochrome enlarging and color and monochrome processing; filmstrip production equipment; stat cameras; diazo processing equipment for overhead transparencies; slide and transparency mounting equipment and graphic producing equipment.
- A training workshop center which provides auditorium seating for up to 150 persons or workshop arrangement for up to 75 persons.

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5. structure and programs

The institutional organization of the Laboratory reflects its functions. Content and skill specialists are grouped in operating units or divisions. These divisions may have involvement with one or more contracts.

Laboratory divisions also house projects related to the major program activities of the unit. A project having potential for consecutive yearly funding (rather than multi-year funding) may be established as a separate division or may evolve into divisional status. A Management Advisory Team, comprised of designated divisional directors, provides counsel to the executive director on institutional organization and operation.

The Laboratory is presently engaged in the following major programs and projects:

- Early Childhood Program

Published SEDL materials (Bilingual Early Childhood, Levels I, II III) were designed to promote the intellectual, emotional, physical, and social development of economically disadvantaged Spanish-speaking children, ages 3-5. Currently, the Early Childhood Program is developing an exportable, replicable Parenting Materials Center Model, multimedia training packages for low-income parents and paraprofessionals, and television spots that build awareness of basic child-rearing skills.

- Bilingual Early Elementary/Migrant Program

Recently published SEDL products (Bilingual Kindergarten and Bilingual Oral Language Development and Reading, Grades 1 and 2) were designed to emphasize language and sociocultural development in children, ages 5 to 8. Instructional activities, staff development, and parent-involvement activities combined with multimedia development materials provide a comprehensive program that emphasizes development of communications skills in Spanish, in English, and both languages. Materials have been specially developed and adapted for children of migratory agricultural farm workers who are native Spanish-speakers. Extensive training and technical assistance and limited curriculum product development occur in this unit.

- Early Elementary Program

Recently marketed products, Concepts and Language and Social Education, Grades 1-3, focus on the educational needs of English-speaking children, aged 5 to 8, from low socioeconomic communities. Under development are products including Thinking and Reasoning--designed to promote problem-solving abilities in young children; Children's Folklore--a multimedia informal learning product; Exploring Number Concepts--a K-1 mathematics product designed for continuous progress; and "Installation Research" to determine alternative dissemination strategies and marketing factors.

- Ability Development Program for Five-Year-Old Spanish-Speaking Children

This program concentrates on children with mild to moderate learning problems and takes a mainstream approach to those children by providing a means whereby they can be maintained in the regular bilingual classroom. The program is characterized by a developmental, rather than deficit, approach. Instrumentation and parent and staff activities are included with this product.

- Ethnic Heritage Studies Program: Czechs, Germans and Poles in Texas

This program stresses general awareness and understanding of ethnic diversity and cultural pluralism in Texas. The project is designed around a social science curriculum for the upper-elementary level and includes teacher-training materials.

- Regional Resource Center for Special Education Services

The Resource Center is operated jointly by the Texas

Education Agency and the Laboratory and is housed in the Laboratory. It provides diagnostic and referral services for rare and inexplicable cases of handicapped children for whom services are not otherwise available.

- Research to Determine the Relationship of Giftedness to State of Cognitive Development

  A study of Piagetian cognitive stages that distinguish gifted children, ages 5 to 9, is the focus of this research project.

- Follow Through Program

  The Follow Through Program is one of two bilingual elementary level models in the United States for Spanish-speaking children and serves five sites in three states and utilizes major Laboratory programs in Bilingual Kindergarten, Social Education, and Oral Language Development and Reading.

- A Demonstration Model for Learning Disabled Students in High School Program (Project Echo)

  In conjunction with the Division of Special Education of the Texas Education Agency, this program is being tested in five school districts with secondary level instruction of learning and/or language disabled students.

- Sociolinguistics "Working Papers"

  The Social Science Research Council has funded a project to produce, through staff associates Richard Bauman and Joel Sherzer, scholarly working papers in various areas of sociolinguistics such as verbal interaction and communicative competence. These papers are produced by major scholars throughout the United States.

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6. R&D processes

The Laboratory follows a process for research and development that ensures maximum effectiveness and cost efficiency. The process is basically comprised of six stages through which all products must pass. They are: (a) context analysis--to establish research-based data; (b) conceptual design--to formulate activities of solution strategies in order to achieve product objectives; (c) product design--to convert all existing research and conceptualization into an initial product version; (d) pilot test--to test, evaluate, and adjust products to enhance potential value and to ensure relevance to predetermined needs; (e) field test--to conduct large-scale testing and evaluation as a means of determining the ultimate utility and viability of a product; and (f) marketing and diffusion--to formulate and implement a plan for product installation based on previously tested installation strategies.

7. accomplishments

The Laboratory's accomplishments are described best by identifying those products currently being marketed or under development. Listed below are some of the major products:

- Bilingual Kindergarten--a full day multimedia curriculum package for five-year-old Mexican American children.
- Bilingual Continuous Progress Mathematics--a multimedia, English-Spanish package of learning tools, diagnostic instruments and guides for supplementary games and individualized instruction.
- Early Childhood Education, Level I--a multimedia package designed primarily (but not exclusively) for Mexican American three-year-olds.
- Early Childhood Education, Level II--a bilingual package for four-year-old Mexican Americans in day-care centers and public schools.
- Early Childhood Education, Level III--a follow-up program (after Levels I and II) for five-year-old Mexican Americans.
- Spanish Oral Language Development, Grades 1 and 2--a program that builds on the native-language experience.
- English Oral Language Development, Grades 1 and 2--builds on what the child knows in his native language to develop English oral skills.
- Social Education, Grades I, II, III--a multimedia social education program for predominantly native English speakers.
- Spanish Social Education, Grades I, II, III--a multimedia Spanish language program for native Spanish speakers. (To be published October, 1975.)
- Spanish Reading, Grades 1 and 2 for Spanish Speakers--a program designed to develop communications and reading skills partly through the use of the language experience approach to reading Spanish.
- English Reading, Grades 1 and 2 for Spanish Speakers--a program designed to develop communications and reading skills partly through language experience approach to English.
- Paso A Paso Con Los Ninos--a book and three albums of Mexican folk music and dances, useful in both elementary and secondary Spanish language classes.
- Concepts and Language--a developmental kindergarten program for English-speaking children.
- Development of Curriculum for Four-year-old Handicapped Mexican American Children--a program that concentrates on curriculum development and supplemental instructional activities for Mexican American four-year-olds with mild to moderate learning problems. (Components to be published, Fall, 1975.)

The Stanford Center for Research and Development in Teaching functions as an integral part of the Stanford University School of Education. The Center director and the directors of its substantive programs are members of the faculty of the School of Education. An executive board establishes general policies.

The Center's mission is to improve teaching in American schools. Drawing primarily on psychology and sociology, but also on other behavioral science disciplines, the Center carries out research, development, and dissemination in (a) teaching effectiveness, (b) the environment for teaching, and (c) teaching and linguistic pluralism. It also supplies technical assistance to poverty-area school sites, maintains an ERIC clearinghouse, and conducts other research and development related to its central mission.

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1. areas of expertise and interest

The Center has the capability to provide technical assistance for research and development in teacher training (pre- and in-service), school structure and organization, and the measurement of bidialectal and bilingual students' language skills.

Thus, the Center can conduct basic and applied research on teaching strategies, behaviors, styles, teacher training (generic and curriculum-specific), achievement of cognitive and social-emotional objectives, aptitude-treatment interactions in teaching and learning, school structure and organization, teacher evaluation, and linguistic pluralism. In addition, the Center has expertise in the areas of nonformal education and dissemination/utilization.

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2. resources

In recent years the National Institute of Education has provided the primary source of funding for the Center. Funding for the Stanford Urban/Rural Leadership Training Institute has been provided by the U. S. Office of Education. Modest support for certain projects during the past year was received from the California State Department of Education; the National Institute of Mental Health, the National Institute for Drug Abuse; and the Social Science Research Council. Contract work during the current fiscal year (for most Center programs, December 1, 1974 through November 30, 1975) has totaled $1.8 million.

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3. staff

The Center staff includes 39 full-time and 56 part-time employees. Of the 24 senior professional staff members, 17 hold doctorates in education, with various fields of specialization; sociology; psychology; linguistics; or statistics. The Center is able to draw on the entire resources of Stanford University. Also, the Center maintains close contacts with the Far West Laboratory for Educational Research and Development, the California State Department of Education, other universities in the San Francisco Bay area, and such California-based groups as the California Teachers Association, the California Federation of Teachers, and the Association of California School Administrators.

4. facilities

Since 1972 the Center has been housed in a building constructed with federal funds. Centrally located on the Stanford campus, the building was designed as a laboratory for research on teaching in all of its different modes--large groups of 50 or more, regular classes of 20 to 40 students, small groups, and one-student (including tutorial and machine) situations. The large-group instruction room contains student-response keyboards, linked to a computer, which can provide instantaneous or delayed feedback to an instructor or data that can be analyzed for other purposes.

The "flexible teaching laboratory" contains movable partitions that can be used to make different-sized classrooms, each linked to a computer and to remote-controlled television cameras for recording student-teacher interaction.

To produce training materials, the laboratory contains a film and TV studio. All these facilities are backed up by a sophisticated computerized information-retrieval system.

5. structure and programs

Functioning within a university setting, the Center's programs interact with NIE and other agencies' staffs and policies in determining their objectives and carrying out their r & d activities. The institutional structure of the Center encourages intellectual cross-fertilization, and several joint activities are conducted. Moreover, the programs draw on a common set of administrative and support services and operate within guidelines that govern the Center as a whole.

The Program on Teaching Effectiveness is working toward the definition of effective teaching and the development of training procedures and products that will improve teaching in the sense of improving student achievement of the various objectives of education.

In recent years work has proceeded along five lines:

- Some 650 teacher training products have been identified and categorized according to a 117-item list of product descriptors developed by the program staff.
- An evaluative analysis of the relative advantages of generic and curriculum-specific research on teacher training and teacher effectiveness is nearing completion.
- A group of experiments have been conducted on (a) the effect of repeated teaching of the same lesson on the effectiveness of teachers; (b) teacher planning strategies and styles; (c) teachers' ability to predict student outcomes; (d) the effect on teacher behavior of feedback of ratings from their pupils; and (e) the effects of training teachers in the use of group-investigation and concept-formation models of teaching.
- A factorially designed, eight-treatment experiment on three major composite variables (structuring, soliciting, and reacting) within the classroom-recitation strategy of teaching has been completed.

- The overall context for the above work is the development of a Systematic Teacher Training Model that will set forth a comprehensive plan for the improvement of preservice and, especially, inservice teacher education.

The program members are particularly interested in continuing the kind of research represented by the current eight-treatment experiment to improve the scientific basis for teacher education, presumably with a more curriculum-specific orientation, i.e., an orientation toward identifying specific teaching methods, strategies, and styles most effective in the teaching of *reading* and *mathematics* in schools in low-income areas.

The *Program on the Environment for Teaching* consists of four related components, each exploring school organization at a different level or from a different perspective. These components evolved as a result of early research on team teaching and the evaluation of teachers--research which indicated that teachers working in teams in open-space schools were more satisfied with their jobs, felt more autonomous, and reported more influence in decision making than did teachers in traditional, closed-classroom schools. Related studies also highlighted the unique problems of teacher evaluation as compared to those of personnel evaluation in other organizations. The components include:

- A three-year longitudinal "general survey" of the relationship between organizational structure at the district or school level and the techniques and complexity of instruction--what is known in the literature on organizations as technology. This structure-technology hypothesis was originally the main basis of the three-year study. Preliminary analysis, however, points to a pattern of "loose coupling" in school organization, i.e., a situation in which the district, school, and classroom levels operate independently in the area of instruction. The study is consequently focusing on the causes of such patterns and the areas that link the levels of school organization more closely.
- A study of the proposition that loose coupling, or "buffering," is a workable but expensive response to environmental complexity. A survey-feedback strategy is being developed to give schools and school districts the tools for responding more rationally to complex environments and educational institutions. Portions of this strategy have been successfully field tested in schools.
- A study of the structure-technology relationships at the staff or classroom level as distinct from the school or district level. The data from the longitudinal survey are being studied to examine the role of the principal in schools where the staff works interdependently. Questionnaires are being used to reveal how teachers make decisions about reading instruction in classrooms with complex curricula.
- A study of student perceptions of their teachers and classroom environments. Low-achieving students, particularly black and Chicano students, report *more* praise and warmth from teachers

and *less* difficulty with schoolwork. Yet their level of both achievement and effort is low. A model is being sought for communicating evaluations that preserve the student's sense of self-worth and yet stimulate realistic achievement.

These activities have led to a new approach to organizational development--one which emphasizes the structural side of organizational problem solving.

In all components, the program's findings are disseminated directly to school teachers and administrators through workshops for educational practitioners; articles in professional and lay journals and SCRDT publications; and two booklength volumes in preparation--one on the survey-feedback approach, one on peer or collegial evaluation of teachers.

Also part of the program was an earlier component, the Stanford Project on Academic Governance. This project conducted an intensive analysis of data on governance and decision making in higher education, drawing on information gathered from 250 institutions. Its work is now completed except for the publication of final reports and a related book.

The *Program on Teaching and Linguistic Pluralism* is developing tests for measuring more adequately the total language ability of bilingual students (Spanish and English) and bidialectal students (those who speak both black standard and black non-standard English). Conventional tests discriminate against these students; as a result, false impressions concerning their capabilities--in learning to read, for example--are conveyed.

Work on the development and validation of these tests of pupil abilities is nearing completion. Also being developed are instruments to measure the attitudes of both pupils and teachers toward nonstandard varieties of English.

The *Stanford Urban/Rural Leadership Training Institute*, with a staff of about 20 specialists in different aspects of education in poor communities, is providing technical and developmental assistance to teachers, parents, paraprofessionals, and other school personnel. This assistance is provided through national or regional conferences and workshops and by direct inservice training at the 26 sites served by the Institute. The Institute is thus an action-oriented program that attempts to apply the ideas and materials developed at this Center and elsewhere across the country, with particular emphasis on the development of school-community councils. The 26 communities include a small Indian reservation in Montana, urban black ghettos in New York and Chicago, poor white Appalachian sites, and urban and rural Southwest locations where the dominant language is Spanish.

The *Center's ERIC Clearinghouse on Information Resources* is one of the 16 ERIC clearinghouses funded by the National Institute of Education. The focus for the Stanford Clearinghouse reflects its having combined two previous clearinghouses on educational media and technology and on library and information sciences.

6. R&D processes

The Center conducts research, development, dissemination (installation/diffusion) activities. Its development and dissemination activities grow out of the Center's strengths in research on teaching. Center program members identify basic areas in which more knowledge is needed about teaching and learning, conduct research, determine the best vehicles for making the knowledge thus gained available to teachers and other appropriate audiences, and then proceed with appropriate development and dissemination activities.

7. accomplishments

The visible impact of the work of SCRDT began in the mid- and late 1960s when the Center defined technical skills of teaching and originated microteaching, in which the trainee practices specific skills by teaching a small group of students for a limited time; a videotape of the lesson is immediately played back to the trainee; and the trainee, after a critique by a supervisory team, reteaches the lesson to another group until a given level of performance is reached. This technique is now used in over 75 percent of the teacher training programs in the U. S. and in many places abroad.

Since then, the Center's impact has taken many additional forms. Twenty-two books and hundreds of articles and monographs, written by past or present SCRDT program members with financial support or intellectual stimulation from the Center, cover such topics as microteaching; teacher effectiveness and teacher education; mandated evaluation of educators; teacher training and teaching methods in general and in social studies, foreign languages, and standard English for speakers of nonstandard dialects; analyses of basic research on teaching, teacher education, and the impact of teachers on student learning; evaluation and authority; managing change in educational organizations; behavioral self-management; academic governance in higher education; and community control of schools. The Center's ideas, findings, and products, it is fair to say, have pervaded the theory and practice of teaching and teacher education in the United States.

Major conferences sponsored by the Center include a 1970 conference of Chief State School Officers dealing with educational personnel development, and a 1972 conference on California's Stull Act mandating evaluation of teachers and other school personnel. Both conferences resulted in published volumes. The Urban/Rural Leadership Training Institute co-sponsored a May 1975 conference on urban education that attracted nationally known figures in this field. The director of the Program on Teaching Effectiveness spent eight months in 1974 as a visiting scholar at NIE, where he organized and chaired an NIE Planning Conference on Studies in Teaching in which more than 100 experts participated.

In any given year, approximately 40 half-time junior researchers in SCRDT are working toward Ph.D. degrees in various fields. Frequently their dissertations are an integral part of Center work. Over the past decade more than 150 have gone into educational r & d work in universities, government agencies, and other organizations. Many have become leading contributors.

SWRL is a Joint Powers Agency created in 1966 by the Regents and Trustees of the Universities and Colleges and the State Boards of Education of Arizona, California, and Nevada. All of these institutions are empowered by law to engage in educational r & d. However, they became signatories to the Joint Powers Agreement because of their conviction that many aspects of education can be adequately addressed only by institutions totally dedicated to r &d in education.

SWRL is under the control of a Board of Directors composed of 18 members, 12 appointed by the signatory members and 6 by the Board of Directors. Although SWRL's governance is drawn from three Southwest states, its operations are national in scale, scope, and service.

SWRL conducts large-scale, long-term programmatic r & d in education to accomplish two general objectives: (1) produce improved instructional outcomes by developing research-based, quality-verified instructional systems, and accompanying support systems required for their use in the nation's schools, and (2) produce a technology providing replicable systematic procedures for effecting improvement in education.

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1. areas of expertise and interest

- Multi-discipline Research--To attain and maintain multi-discipline educational research capability requires a special environment that SWRL has devoted considerable effort to establish. SWRL now has the personnel, management, facilities, and experience necessary to bring the knowledge and methodology of a range of disciplines to bear in common inquiry on matters of educational significance.
- Programmatic R & D--Sustained, cumulative inquiry in education demands an organizational sensitivity to identify what works and what does not. In addition, it demands an organizational memory to recall what has worked and has not worked in the past. SWRL has borrowed mechanisms from other fields of r & d that have traditions of strong programmatic inquiry and has adapted them as required for use in an educational r & d environment. This permits SWRL to assume responsibility for long-term, large-scale r & d and to derive short-term usable products and reports as the inquiry proceeds.
- Educational Product Development--Education by nature requires instructional resources compatibly comprehensive and manageably effective. The expertise of instructional system development relies on a combination of directed research and tryout-revision cycles, sequenced stages that successively reduce the uncertainty associated with the outcomes sought. SWRL is now capable of developing instructional systems as ambitious in scope as the leading edge of the state-of-the-art in this area permits.

- Training/Installation System Development--The finest educational product will remain in disuse unless there is a means of providing teachers and other school personnel with the specific capability to use it effectively. SWRL experience in producing low-cost, manageable, and quality-verified training/installation systems that operate in conjunction with instructional systems enable it to operate at the leading edge of the state-of-the-art in this area.
- Quality Assurance System Development--Quality education by definition necessitates credible indicators of such performance. SWRL has a unique capability in developing quality-assurance systems yielding information that provides a basis for crediting individual accomplishments and for planning future activities. The information included in quality-assurance reports is in a form understandable by parents and the public as well as by persons within the schools.
- Media-based R & D in Education--Communication media other than print have been more successively exploited outside than inside education. SWRL personnel and physical resources include the expertise for sustained and systematic research and development in utilizing non-print media in an instructional context.
- Application of Computer in Education--Computer technology and educational development technology have both advanced toward an intersect of cost-feasible configurations for strictly educational purposes. SWRL expertise and experience ranges from computer configurations designed and developed for research and development in instruction to information systems that have operated in conjunction with hundreds of thousands of students nationally.
- Educational R & D Management--Management practices that originated in other fields have been tested at SWRL and adapted and extended as required to meet the unique requirements of an educational r & d context. SWRL has the capability for fulfilling prime-contractor responsibility of coordinating educational r & d involving other participating contractors.
- Postdoctoral and Internship Training--The resources of SWRL as a dedicated r & d institution provide unique support for specialized internship and postdoctoral training.
- Technical Assistance for Large-scale Educational R & D--SWRL can provide technical assistance to external organizations desiring to upgrade or expand their educational r & d operations.

2. resources

Contract work during the last fiscal year totaled $3,300,000.

3. staff

SWRL has recruited a multi-disciplinary staff of the highest quality. Recruitment has drawn on national academic talent and has sought individuals well-grounded in a discipline with a high degree of competence and proficiency within areas of SWRL's expertise. In addition, this staff has an interest in real-world problems in education and are capable of interactive team effort toward solutions. Disciplines represent the specializations within education, the range of behavioral science, disciplines, art, business, computer sciences, engineering, English, information science, law, linguistics, mathematics, music, Spanish, and theatre arts. The present staff includes over 100 professional and 60 support personnel.

4. facilities

SWRL has the only off-campus facility in the nation planned, designed, and constructed for exclusive dedication to educational research and development. Completed in 1972, the 90,000 square foot building is located near Los Angeles on a twelve-acre, landscaped site in Los Alamitos. SWRL has a 50-year, no-cost license from the Department of Health, Education, and Welfare to use the site and facility for its educational r & d purposes. In addition to housing general r & d functions, the facility provides special support for educational r & d functions including a computer center, television studio, graphics arts studio, instrumentation laboratory, simulation laboratory, learning labs, film production, product display area, conference rooms, library, and print shop.

5. structure and programs

SWRL is organized in a modified matrix structure. This type of organization incorporates the strongest features of both project and functional organizations while avoiding their weaknesses. It also provides the flexibility necessary for utilizing the institution's capabilities in a manner that furthers a sponsor's interests and meets its requirements.

The following are illustrations only, intended to suggest the range of areas of possible common interest with potential sponsors.

- Communication Instruction--encompasses a large part of basic academic instruction in written and oral communications from preschool through adulthood.
- Information Processing Instruction--development of instructional products that results in direct proficiency in information processing skills in children that heretofore have been possessed only by specialists in mathematics, information science, engineering, and allied fields.
- Arts Education--programmatic research and development in art, music, and other fine arts areas using the SWRL Instructional Development Control and Monitoring System--a highly advanced computer system utilized exclusively for educational r & d.
- Citizenship Instruction--development of instructional products designed for use for youngsters as early as preschool and following through to attainment of basic proficiencies required to maintain and strengthen American democracy.

- Differentiated Media in Instruction--performing programmatic r & d necessary to permit utilization of non-print media for instructional purposes with outcomes ranging from technical principles of interest to the academic community to broadcast-quality videotapes of use to instructional television channels.
- Electronic Systems in Education--use of technology of microelectronics, such as pocket calculators and portable cassettes, to teach about electronic systems as well as their use in facilitating conventional instruction.
- Training and Installation Advances--giving systematic attention to the training requirements of teachers and the installation requirements of administrators in effecting a product-oriented change in education will increase the effectiveness and direct contribution to ongoing school operations by publishers and colleges of education.
- Quality Assurance Advances--development of quality assurance systems that, when used with developed instructional products, provide the means for crediting instructional accomplishment, identifying deficiencies of individuals before they become serious instructional problems, and planning instructional modifications based on the interpreted information.

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6. accomplishments

The accomplishments of SWRL's r & d program include the following:

Educational Products

1. SWRL/Ginn Instructional Concepts Program
2. SWRL/Ginn Beginning Reading Program
3. SWRL/Ginn Reading Program
4. SWRL/Ginn Advanced Reading Program
5. SWRL/Ginn Composition Skills Program
6. SWRL/Ginn Spelling Program
7. SWRL/Ginn Expressive Language Program
8. SWRL Elementary Art Program
9. SWRL Elementary Music Program
10. SWRL Speech Articulation Kits
11. SWRL English Language and Concepts for Spanish Speaking Children
12. SWRL Instructional Product Selection Kit
13. SWRL Learning Mastery System: Addison Wesley Mathematics (Grades 1-6)
14. SWRL Learning Mastery System: Houghton Mifflin Mathematics (Grades 1-6)
15. SWRL Proficiency Verification System: Reading
16. SWRL Proficiency Verification System: Mathematics
17. SWRL Instructional Development Control and Monitoring System
18. SWRL Instructional Management System (IMS-3)
19. SWRL Language Analysis Package
20. Music Retrieval System

Documented Scientific and Technical Inquiry

21. Language Skills
22. Conceptual Skills
23. Word Attack Skills
24. Rules of Correspondence
25. Dialect Characteristics
26. Pedagogical Structures
27. Instructional Product Development
28. Educational R & D Facility Construction and Operation
29. Multiple Matrix Sampling
30. Domain Referenced Testing

Within three years, SWRL's educational products will have been distributed through the private sector to millions of youngsters, teachers, and administrators throughout the nation. The results of scientific and technical inquiry are made available to the professional, scholarly, and governmental communities through journal articles and monographs, technical reports, ERIC, and presentations at professional meetings.

The Wisconsin Research and Development Center is a noninstructional department of the University of Wisconsin School of Education. The Director is appointed by, and reports to, the dean of the School of Education. Advice and counsel to the Director are provided by a Council of Principal Investigators and by an Executive Committee.

The mission of the Wisconsin R & D Center is to help learners develop as rapidly and effectively as possible their potential as human beings and as contributing members of society. The Center is striving to fulfill this goal by

- conducting research to discover more about how children learn
- developing improved instructional and organizational strategies, processes, and materials for school children, teachers, and administrators, and
- providing assistance to educators that will help transfer the outcomes of research and development into practice

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1. areas of expertise and interest

Since 1964 the Center has pursued a program to improve education for children by (a) conducting research to extend knowledge about children's learning and instructional practices; (b) developing administrative/organizational and instructional models, materials, and procedures (c) disseminating information about its knowledge and developmental products; and (d) working with various educational agencies to ensure that its tested products and procedures are put into use in schools.

The Center's activities are primarily focused on Individually Guided Education, an alternative system of education that takes into account what each child already knows, how rapidly the child learns, how the child goes about learning, and other characteristics.

The Center has developed and evaluated individualized materials for elementary and middle school children in reading, mathematics, motivation, and environmental education, and currently is involved in a program to meet the unique needs of the gifted, handicapped, or disadvantaged children. In the area of school management the Center is researching, developing, and refining ways of organizing elementary and secondary schools; the use of computers to help teachers manage instruction for individuals also is being explored.

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2. resources

The current annual budget is over $3 million, nearly 90 percent of which comes from the National Institute of Education. The Center also receives funds from the Bureau of Education for the Handicapped and the University of Wisconsin.

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3. staff

The professional staff is an interdisciplinary one. It includes 21 professors serving as principal investigators drawn from 9 academic departments. These professors are responsible for the Center's research and development components. The other staff consists of a director and deputy director, two associate directors for programmatic and support activities, directors of service sections, program and project coordinators, scientists and specialists, civil service personnel, graduate students and hourly employees. The total staff numbers over 200. Of the 102 professional staff, 58 are former public school teachers or administrators.

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4. facilities

The Center occupies seven floors (52,000 square feet) of the UW Educational Sciences Building. In addition to office and conference room areas, the Center has a large resource-materials center and many research laboratories. Facilities, equipment, and personnel are available to develop commercial quality audiovisual and three-dimensional instructional materials. Facilities include a color TV production facility, sound recording studio, photo processing laboratory, model shop, and electrical fabrication shop. The Center has a sophisticated print shop including electrostatic images and offset presses, producing about 500,000 impressions a month.

The Center's medium-scale computer configuration (Harris 6024/5) has a one-microsecond cycle time and 195,000 bytes of core memory. The computer is on-line to the large-scale computing capabilities (Univac 1110) of the UW Madison Academic Computing Center for applications requiring extensive scientific computing.

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5. structure and programs

The Center's programmatic efforts may be viewed in terms of three functional areas, each of which involves both research and development.

a. Individualized Instruction

To individualize education successfully it is necessary to have access to instructional materials that provide for differences in rates and styles of learning among children. The Center has developed the following instructional materials:

- The Wisconsin Design for Reading Skill Development--a skill-centered, individualized approach to teaching reading used with over one million elementary school children in 48 states
- Developing Mathematical Processes--an activity-oriented math program, the first two levels of which are commercially available after field testing with 25,000 children
- Individually Guided Motivation--a system to help teachers increase children's self-direction and interest in learning through conference and peer-tutoring programs
- Prereading Skills Program--a program designed to prevent reading failure by teaching kindergarten children

basic visual and auditory skills through games and small-group activities

- Environmental Education--a middle-school program that incorporates both science and social studies concepts (this project is in the early stage of development)

b. Instructional Management

IGE is concerned first with changing the organization for instruction and related staffing patterns so that individualization can more readily occur. Replacing the age-graded, self-contained classroom at the elementary level is a new organization, the multiunit school. By incorporating such practices as multiaged grouping of children, team teaching, and differentiated staffing the multiunit elementary school provides for instructional decision-making at appropriate levels, open communication, and accountability. The multiunit school and IGE practices are undergoing continuing refinement based on feedback from schools and on research findings. Research is also being conducted on cost effectiveness and home-school-community relations in IGE schools.

In response to expressed needs, the Center has initiated programs in (1) IGE secondary education to extend continuous progress practices to the middle and high schools levels, and (2) computer management systems to improve instructional decision-making in IGE schools by providing timely, useful information to teachers, parents, students, and administrators.

c. Children's Learning and Instructional Strategies

To continue to develop new and improved materials and strategies for individualizing education, more knowledge is needed about how children learn and develop. The Center is carrying out investigations in the areas of concept learning, individual differences, verbal and imagery processes, and peer teaching.

In addition, the Center operates a program funded by the Bureau of Education for the Handicapped--"Enhancing Education for Exceptional Children." This program currently consists of Specialized Office Three, established to locate, evaluate, develop, and recommend instructional materials for use with handicapped children other than deaf and blind.

The above research and development components are aided by the following support or service sections:

(a) Administrative Services--personnel, contracts administration, facility management, media services, duplicating services, and Research Materials Center.

(b) Business Services--fiscal management and inventory control.

(c) Implementation Services--nationwide dissemination and implementation of IGE.

(d) Technical Services--product evaluation, test development, and statistical analysis.

(e) Computer Services--electronic data processing equipment acquisitions, and hardware/software development and maintenance.

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6. R&D processes

The Center's research, development, evaluation, and implementation activities are interrelated in a meaningful and effective way. With the involvement of the educational community and feedback from teachers, administrators, and parents, these functional activities comprise the process through which the IGE program is successfully carried out.

Research activities have always represented a major dimension of the Center's program, serving to stimulate feasibility studies, to act as knowledge input to development, and to effect practices in schools.

Development activities are the logical extensions of research, developmental feasibility studies, and input from schools and other educational organizations. The importance of feedback from educators cannot be overemphasized; close contacts with participating school systems are the basis for all formative evaluations, needs analyses, and insights into alternative r and d approaches.

The Center's implementation activities are directed not only toward the dissemination and installation of IGE materials and processes, but toward the establishment and maintenance of 4 regional centers and 23 state IGE networks consisting of the state education agency, teacher education institutions, and local school districts. The implementation activity is directly connected to the educational community through preparation and evaluation of staff-development materials and programs, product-awareness conferences, implementation and field-test scheduling, and the application of effective institutionalization techniques.

Evaluation activities address problems associated with analysis of school-identified needs and with formative evaluation of products during development and field testing. The Center practices total evaluation of each of its programs and products; this involves such considerations as needs assessment, marketability, effectiveness, consumer impact, and follow-up activities. Evaluation is an integral part of each stage in the development of a product, from specification of objectives and assessment instruments through tryouts, pilot tests, and field tests. Another aspect of evaluation is test development. A test construction model is followed that consists of at least six steps (each including a developmental phase and a review phase) generalizable to any curriculum materials based on behavioral objectives.

The evaluation activity provides information to all other Center activities. This information guides decisions regarding specific research and development activities and feasibility studies.

The above description of the Center's approach to relating research, development, implementation, and evaluation traces in broad outline the relationships among these four primary functions and other involved activities and agencies. Extensive interaction enables orderly development of knowledge products and instructional/curricular programs to take place within the framework of a major programmatic theme, IGE.

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7. accomplishments

The feasibility of IGE as an alternative form of schooling is exemplified by the adoption record of the multiunit organization. In 1967-68 only seven Wisconsin elementary schools were completely organized as multiunit schools. By the end of the 1974-75 school year, approximately 2,500 schools in 38 states had made the complex change to this new organization for individualizing instruction.

The Center continues to apply and refine its implementation model through which environments supporting the installation and maintenance of IGE can be realized nationally. IGE support-networks composed of state, regional, and local education agencies and teacher education institutions now operate in 23 states to provide both initial inservice and continuing assistance to IGE schools. Four regional (multistate) IGE centers have also been established. In 1973 an independent National Association of IGE educators was formed.

Curriculum materials developed and evaluated by the Center have also made a significant impact on the nation's schools as shown by the following examples. The Word Attack and Study Skill portions of the Wisconsin Design for Reading Skill Development are currently in use in about 4,000 elementary schools in 48 states. More than 90 coordinators of the Individually Guided Motivation program are being trained by the Center, and are available to provide inservice support to teachers throughout the country. Representatives from more than 15 teacher-education institutions are currently being trained as coordinators for the Developing Mathematical Processes curriculum program and they, in turn, will be qualified to provide staff development support to schools wishing to implement this curriculum program. The Center's Prereading Skills Program is in use in 531 schools in 36 states after only one year of commercial availability. The singular productivity of the Wisconsin R & D Center in the research, development, evaluation and dissemination of Individually Guided Education is also exemplified by the large number of research documents produced by the Center and distributed nationally.

The development of instructional materials and processes, their evaluation and their implementation in increasingly large numbers of schools throughout the country, and the establishment of networks of educational agencies whose primary missions are to facilitate the implementation of IGE, testify to the impact capability of the Wisconsin Research and Development Center.